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RAIL-ROAD NEWS.

The Quebec and Halifax Railroad.

The British Government has thrown cold water on this scheme. Mr. Hincks was dispatched from Canada to solicit the support of the Government in London to negociate for $35,000,000 to build the Quebec and Halifax Railroad, and it would seem the last Ministry gave him encouragement of success. The Derby—present—Ministry has declined to guarantee such a large sum, and gave, as a reason, "the said railroad is not one that would properly develope the resources of the country." Mr. Hincks is highly offended with the government, and has come out in a sharp letter, which was published in the "London Times." He considers himself to have been uncivilly treated, and states that the government behaved towards him haughtily and proudly. This is just what might be expected; the British Government, as a general thing, do not know how to treat their colonies. The Lords and Dukes think themselves made of some different kind of stuff from the plebians and colonists. The best way for them to govern their new colonies is to let them alone: and to the colonies we say, "the best way for you to do is to try and stand alone. We do not speak of severing any old connection, or forming a new one, but we do say—try more to stand alone; do not go a-begging so often to your old hard-wrought Mother. It is the working people of Britain who pay for all—they work for it, not the Dukes; therefore, whatever taxes or loans are made, they have all to be taken out of the faces of the workers."

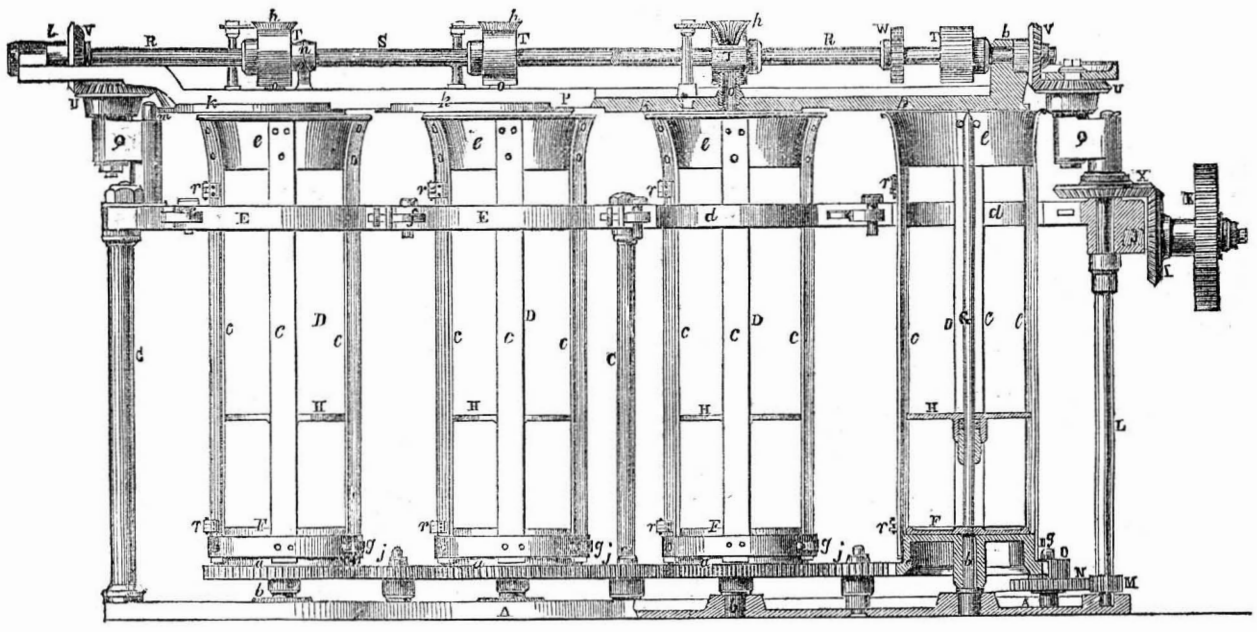
Railroad Car Improvement.

An important improvement in car and loco motive trucks for railroads, Col. Ross informs us, has been made by Whitman & Rutter, formerly of the Stonington Railroad. For instance, they ride a car body on six round balls, in lieu of two hundred and ninety-six inches friction of bearing. The truck is so calculated that the weight is equalized on a rough or smooth track, entirely doing away with springs. The equalizers are so arranged as to form thirty-six working joints around the truck, making the car or locomotive ride easier than with double the number of springs now in use. No matter how rough or uneven the rail may be, this truck obviates every obstacle and gives an easy motion to the cars in their passage over the road.

A patent for this improvement has been applied for, and the saving to railroad companies for springs and wear and tear must be very large. Rutter has cars on construction at Elmira, N. Y., for some of the railroad companies.—[Providence Journal, R. I.

[Anti-friction balls for bearings are nothing new, they are very old, and no reader of the Scientific American would apply for a patent, for such devices, unless it were for the very purpose of losing his money. Such bearings were illustrated. See engravings on page 412, Vol. 3, and page 148, Vol. 4, Scientific American.

McKINLAY'S COILER AND PACKER.---Fig 1



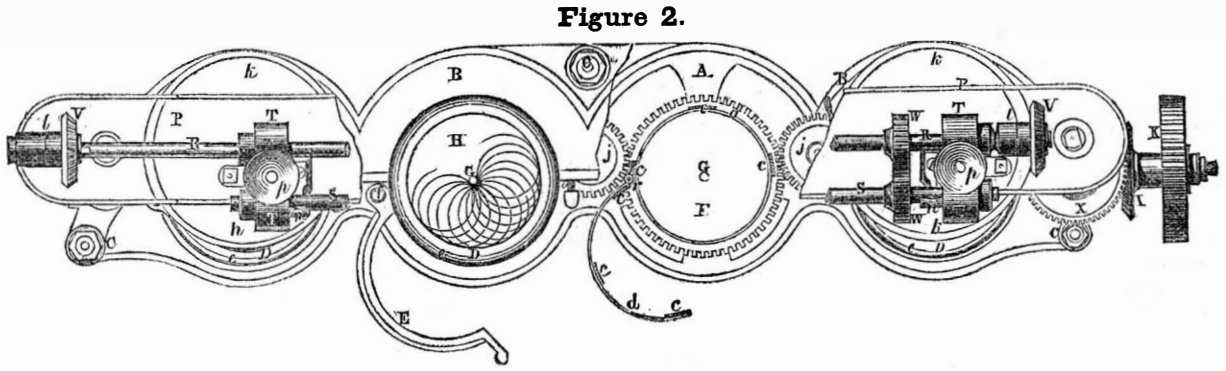
The accompanying engravings are views of improvements in machinery for coiling and packing the slivers and rovings of cotton, &c. The inventor is Peter McKinlay, of Wappinger's Falls, Duchess Co., N. Y.; he has taken measures to secure a patent.

Figure 1 is partly a front elevation and partly a longitudinal sectional elevation of a coiler and packer with four cans. Figure 2 is a plan view partly in section of fig. 1. The same letters of reference indicate like parts on all the figures. The object of this machine is to obviate the necessity of using so many of the intermediate machines employed between the carding and spinning operations. The improvements embrace the coiling of the slivers, rovings, &c., to be packed in such a manner that they can be distributed in layers formed of loops of various forms, as may be most desirable, the said layers being placed either in the cans usually employed, or coiled around rods having a foot plate of sufficient size to receive the layers. The slivers can also be packed in the common can, or around a spindle without a can, the spindle being capable of removal with the yarn, and taken to the spinning frame as a large bobbin. The cans are bell-mouthed to allow the sliver, &c., to be packed more compactly in the cylindrical part. The cans are each furnished with a hinged door in the side, so as to allow the slivers or rovings, after they are coiled and packed, to be taken away without removing the cans from the machine.

A is the bed-plate, upon which all parts of the machine are supported; B is another plate, supported on A by standards, C C. D D D D are the cans; their bottoms are of cast-iron, furnished with spur-teeth all around to serve as spur-wheels, and are fitted to turn freely on fixed studs, *b b*, secured in the bed-plate; this is shown in section can, fig. 1. The sides of the can are formed of thin strips, *c c*, of metal united by a hoop, *d*, and a bell-shaped mouth-piece, *e*. One half of the strips, *c c*, of each can, are attached by rivetting, or otherwise, to the bottom, *a*, the other half are secured to it by hinges, *r r*, and capable of opening, as shown in the second can, from th right hand in fig. 2; they are secured when closed by a catch. A guide is formed for the upper ends of the cans to keep them steady, by semicircular recesses in the front of the plate, B, and half rings, E, hinged to the front plate at *f*; the said hinges are employed for the purpose of throwing the guides open, as shown at the third can from the right hand, fig. 2, to allow the cans to be opened, or taken out altogether. On the bottom of each can there rests a disc, F, which may be of wood or metal, nearly as large as the inside of the can, forming the base of the spindle, G, which is firmly secured in it at one end. H is another disc securely fitted to the spindle, G; it is about the same size as disc, F, and of similar material. The disc, H, has a stuffing-box, *h*, by which a certain amount of friction may be produced upon the rod, to hold the disc in place, and allow it to move longitudinally upon the rod with a certain amount of pressure.

The cans derive rotary motion from a bevel wheel, I, which runs loosely on a fixed stud,

Figure 2.



J, secured in the plate, B, the said bevel wheel receiving its motion from a spur-wheel, K, which is secured to it and receives motion from any prime mover; motion is communicated to the cans through another bevel wheel, X, on a vertical shaft, L, which carries a pinion, M, gearing with a wheel, N, hung loosely on a stud having a pinion, O, secured to it, which gears with the teeth on the bottom, *a*, of the first can. The several cans are geared together by intermediate spur-wheels, *j*, which make them revolve together in the same direction. The spindles, G G, and the discs revolve with the cans.

P is the coiling head, which consists of a plate of sufficient length to cover the whole line of cans, and to extend beyond them each way; it is of sufficient width, or nearly so, to cover the cans during every portion of its movement, or certain parts, in the form of discs, *k*, are made of larger diameter than the cans one disc being provided for each can. These discs may be made of thin metal plate, secured to plate, P. In the engravings, this plate is represented quite narrow, with discs over the cans. The plate, P, is supported at its ends by two cranks, Q Q, of equal length. one of which is keyed to shaft, L, so as to turn with it; the other is fitted to turn freely upon an upright stud, *m*, secured to the plate, B. It is held at such a height, that the faces of the discs, *k*, just clear the tops of the cans. On the top of the plate, P, there are bearings, *b n*, for two parallel shafts, R S, which carry one pair of feed rollers, T T, for every can. Under each pair of feed rollers, there is a short tube, *o*, by which the sliver is conducted into the can; above the rollers there is a funnel mouth, *p*, to conduct the sliver to the rollers.

The coiling head receives its motion from the crank, Q, which is secured upon the shaft, L, and revolves with it; and as the two cranks carry bevel wheels, U U, the said wheels being equal in size, and gearing into the bevel wheels, V V, of equal size also, upon the shaft, R, they both revolve together, and every point in the plate, P, describes the same circle as the crank pins which form the axes of the wheels, U U; these wheels, by giving motion to V V, drive the shaft, R, which is geared by a pair of spur wheels, W W, to S, and thus the feed rolls are driven. The movement of the feed tubes, relatively to the cans, will be best understood by referring to fig. 2, where the positions of the feed tubes are indicated by the funnels, *p*, which are supposed to be placed vertically above them. The form in which the sliver or roving is laid in the can, is shown in the third can from the right hand, in fig. 2; the revolution of the can causing it to wind in a series of spiral loops around the centre spindle. The can and the tubes may revolve in the same or opposite

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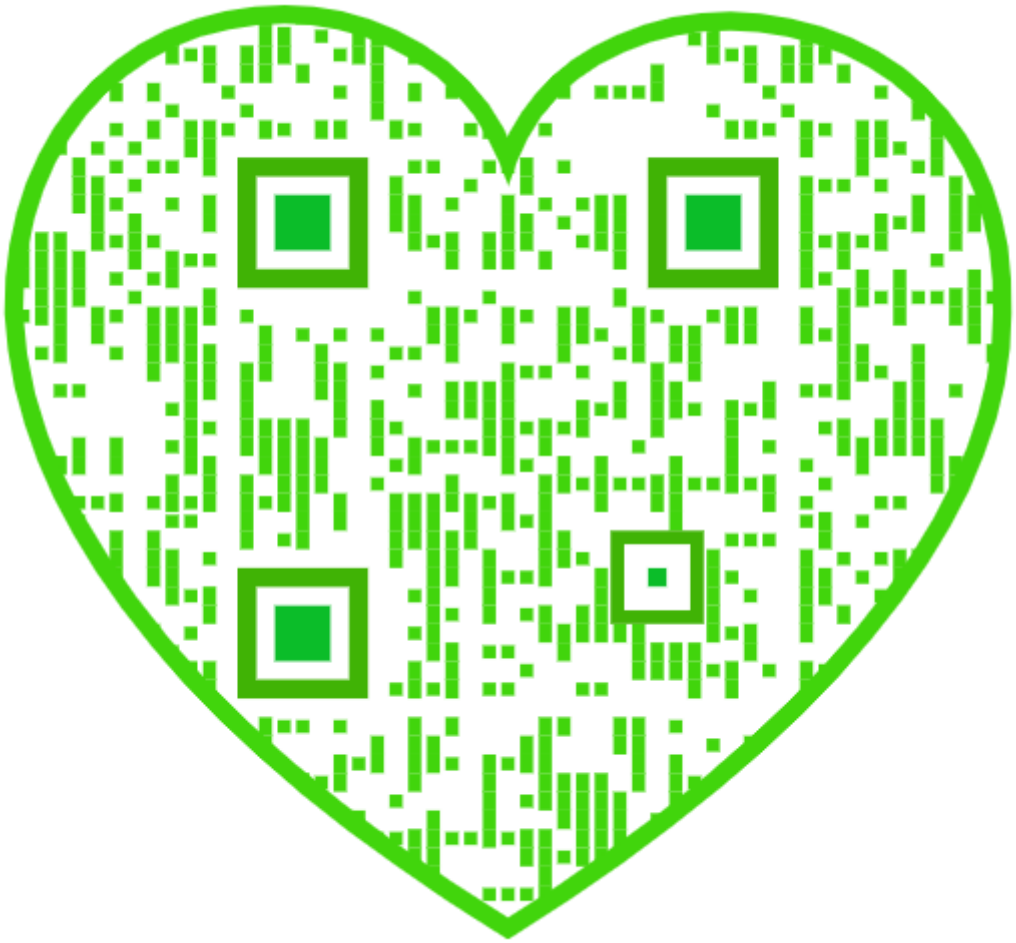

directions, the direction of its revolution varying the form of the loops. Their form will also be varied by any variation in the relative speed of the revolutions of the can and feed tube, a very slow movement of the cans making the loops almost circular, and a quicker movement making them approach nearer to an elliptical form. The coiling head may receive a vibratory movement by means of cams, eccentrics, or levers, and be made to distribute the sliver in the cans in loops of any form, varying from parallel to circular layers, nearly.

Operation—Before starting, the discs, H H, are brought up nearly to a level with the tops of the cans; the sliver is then brought through the tubes, *o*, and the machine set in motion. The sliver is fed in by the rollers, T T, and deposited on the discs, H H, upon which it is compressed by the discs, *k k*, or the face of the plate, P, whose surface must be polished to lessen friction on the material. As the sliver is crowded in, the discs yield to the increasing pressure, and slide gradually down the spindles, G, until they reach the feet, F F, when the cans are full; the machine is then stopped. The opening parts, E E, of the can-guides are then opened, and also the door of the can, and the coiled material is all taken out by taking hold of the ends of the spindles. The coils of sliver or rovings may be deposited in other cans, or light boxes, to be carried to the next frame, by inverting it into the said cans or boxes, and withdrawing the spindles and discs, or the spindle may be placed like a large bobbin in the next frame, the sliver being drawn off over a roller. The same spindles are replaced, or other spindles are placed in the cans, and the operations are repeated as before. This coiler and packer is susceptible of considerable modification; for instance, the cans and spindles may be stationary, and then, in addition to the motion now given to the coiling head, another motion may be given, corresponding to that now given to the cans, by which the sliver may be coiled in the same manner. The same result may be obtained by placing the crank or cranks below, and giving the cans a double movement, by which, while they revolve slowly on their axes, they move quickly in a small circle, the plate, P, and its appendages, being in that case stationary. It may also be obtained by applying the crank movement to revolve the upper end of the can, the bottom being supported on a pivot moving any way, while a slow axial movement is produced either by a ratchet wheel and catch, at each revolution of the crank, or by a slow movement from below by gearing or belting. Instead of the cans opening at the sides, the machine may be made with only the bottoms, *a a*, upon which common cans may be placed with spindles, G G, and discs, H H, inside. Instead of stuffing boxes, *h*, springs or slit tubes may be used to produce the necessary friction of the disc upon the rod.

One great advantage possessed by this machine, is the unlimited number of cans which may be employed. The coiling head requires no more mechanism to drive it for twenty cans than for one; the only additional gearing required being that for revolving the cans. Another advantage is the distribution of the sliver in any form of loop; it can be driven at a greater velocity than common coilers, and it allows of a greater quantity of sliver or roving to be packed in the cans.

More information may be obtained by letter addressed to the inventor.

Imitation of Black Walnut.

Steep two pounds of the outside shuck of the butternut in one gallon of soft water, until the strength of the bark has impregnated the water; stain the article that is desired to be colored with this decoction, giving it from three to ten coats, according to the darkness of the color desired. J. C. H.

At the commencement of the University of North Carolina, a few days ago, the honorary degree of L.L.D. was conferred upon Lieut. Matthew F. Maury, U. S. N., of the National Observatory, at Washington.

The Governor General of Cuba has granted charters to two telegraph companies to run lines so as to connect the principal cities of the Island.

The Telegraph.

A work on the Electric Telegraph, by Alexander Jones, of this city, who has been so long and intimately connected with telegraphic reporting, has just been issued by George P. Putnam; it gives a chronological history of telegraphic inventions, and corrects the prevalent idea that Franklin was the first to convey electricity to a distance on wires. This was done in 1726, by Mr. Wood, in England, —Franklin, however, was the first who made the discovery that electricity and lightning were identical—the same thing. His experiment of drawing lightning from the heavens, by the flight of a simple kite, is the most wonderful and sublime philosophical experiment on record.

Mr. Jones takes the same view of Judge Kane's decision, in the Morse and Bain case, which was decided in Philadelphia last year, as we have done in discussing the question. He says, "the decision of Judge Kane is one of the most extraordinary ever delivered in a court of justice. It was given in opposition to the direct testimony of highly respectable scientific witnesses bearing upon the direct points at issue, otherwise how could he have decided that Steinheil's Telegraph was not a *recording* but a *visual* telegraph, when it actually recorded dots on strips of paper?" There can be no doubt but Steinheil's telegraph recorded messages by *dots*, before Prof. Morse had discovered his dot and dash alphabet. Steinheil's telegraph, however, is not so beautiful nor so good as that of our American inventor.

This work pays a high compliment to House's Printing Telegraph; this we are pleased to see; it is, as a telegraphic machine, the most ingenious ever invented. A number of excellent suggestions for new applications of the telegraph, are made by the author. The application of it to send fac-simile representations of runaway criminals, &c., to distant places, is an important one. The time will come when the earth will be belted by the electric wire, and New York will yet be able to send the throb of her electric pulse through our whole continent, Asia, Africa, and Europe, in a second of time. Telegraphing is but in its infancy: it is only eight years since the first telegraph line was erected in our country; it was only forty miles long, and put up between Baltimore and Washington by a Congressional grant of thirty thousand dollars.

Since that time the telegraph has made many triumphs, and at the present moment there are no less than fifteen thousand miles of telegraph lines. What a change in eight short years! We well remember travelling through the interior of this State, in 1846, when the first line was being erected between Albany and Buffalo; many of the passengers, men apparently of considerable intelligence, and of sharp business qualities, laughed and talked about the new humbug invention; it galled our feelings greatly, for we believed in its practicability and great usefulness the first time we saw a machine operate. What future triumphs there may be for the telegraph we cannot tell, but we look upon it as one of those great inventions which, like the steam engine, change the destinies of nations, by revolutionizing their social customs. Mr. Jones believes that it will yet supersede the Post Office, and although we are not so enthusiastic, we will not pretend to deride the idea, for it has, in a measure, done so already.

While Daniel Webster, a few weeks ago, was speaking in Faneuil Hall, those who sat listening to his voice, had only that advantage over others in distant cities, for as the words were falling from his lips, in Boston, the electric telegraph was recording them for the printer, at the same instant, in New York. The speeches delivered in Washington, every day, are, in substance, transmitted to New York and other cities, almost as soon as they are delivered.

Well and divinely is it recorded in Scripture, man was created in the image of his Maker; his inventions are an evidence of this. The brutes of the field continue in the same state from generation to generation; man alone progresses. The hut of man, of one age, is exchanged for the palace in another; the canoe and flat-boat, of one age, is exchanged for the noble ship and the leviathan steamboat in another; and the slow post-chaise we have seen, in our day, exchanged for the locomotive and the electric telegraph; the latter invention conferring upon man a power approaching to that of omnipresence. Truly, our inventors have done more for the world, to change its destinies, physically, than all the warriors and statesmen that ever lived.

Narrow Escape of an Engineer.

In the last number of the Scientific American, we noticed the falling of the building occupied by the "Buffalo Republic," (N. Y.,) burrying the compositors, &c., all of whom escaped with only a few slight bruises. The "Republic," in connection with an account of the affair, notices the following narrow escapes incurred by one individual:—"During the last month, while engaged in adjusting the machinery of the power press in the 'Hudson Observer,' Ohio, the engineer, not perceiving his position, turned on the steam. He was struck by a portion of the machinery, and by the merest chance was saved from being crushed to death. It so happened that he was on board the Forest City last Wednesday, when her larboard flue exploded, and was thrown a distance of thirty feet. He again escaped injury. The first day that he commenced working in our office, the roof fell upon him, and he was saved by being underneath the skylight when the roof fell."

Southern Manufacturing.

The Savannah, (Ga.,) Republican regrets the want of enterprize exhibited by the people in that section in respect to manufacturing enterprize, as a wanton disregard of nature's bounties. We have been informed that many of the cotton manufactories in our Southern States, have failed to be profitable, and the original stockholders have mostly sold out their interests. We cannot account for this; it is certainly reasonable to suppose that the manufacture of cotton goods can be conducted more economically near the cotton field than at the north or in England. On the other hand there is no way of determining this but by experience. In Georgia a great number of cotton factories are in operation; how successful or otherwise they are we cannot tell. England, in the Old World, and Massachusetts in our own country, have made a great deal of wealth by the manufacture of cotton fabrics. Is it in the climate, or what can be the cause of failure in our southern manufactories?

Boiler Explosion.

On Friday afternoon, last week, a steam boiler in the rear building of the Eagle Spice Mills of Messrs. Isham, on Hudson, near Grand street, Jersey City, exploded with fearful violence, destroying the building, and burying four men in the ruins. The windows in the houses in the vicinity were blown out by the force of the explosion, and a portion of the boiler weighing 500 lbs. was thrown at least 300 feet high, and came down in York street, a block and a half from the scene of explosion. It fell upon the sidewalk, and smashed the stones into atoms.—The engine was broken to pieces and the fragments blown to a great distance.

Death of a Balloonist.

James Goulston, a balloonist, lost his life on the 2nd of June, on an aerial excursion, from Manchester, Eng. He was thrown out of the balloon, and his feet were entangled in the cords, and in that state he was dragged by the balloon along the ground, head downwards, for a great distance. His death was a sad one.

Burning Diamonds.

In a recent lecture at the Royal Institution, London, on Carbon, by Prof. Faraday, the place was illuminated for some time, by a very expensive light, viz.: diamond in oxygen gas. Specimens of diamonds were displayed converted into coke, and one piece had one end converted into charcoal, while the other was diamond still.

At a recent Prussian Industrial Exhibition, a large proprietor of iron works exhibited sheet iron of such a degree of attenuity, that the leaves could be used for paper with white ink. The machinery for the purpose of rolling these thin iron sheets rolls 7,040 square feet of metal from a 100 lbs. of metal. These leaves are as flexible as those of paper.

The Age of Gold.

What is to be done with all the gold?—That's the question. A perfect flood of the yellow dust appears to be pouring in upon the world, and yet not the world either, but two countries of it, and singularly enough, the only two countries prominently distinguished for free institutions and commercial greatness. There is something remarkable in all this; and who can divine what the result may be? Two years ago there was but little gold produced in these United States, and not a single colony of Britain produced any. Since that time California has sent us million upon million of this staple product—at once the curse and glory of many nations. Gold obtained by honest industry is not a curse, we only speak of it as a curse when wars and wrong acts are committed to obtain it. Australia, that new continent, and colony of England, is now vieing with California in her golden products. We see by recent foreign papers that one man dug out 130 ounces of gold in one day, and others have been equally fortunate. The California diggers appear to have the advantage in respect to a greater quantity of water, but the supply of gold appears to be as good in Australia. It is supposed that the supplies of gold from California and Australia will be quite abundant for a great number of years. What then will be the result of all this? Will bank bills become scarce, and only hard yellow eagles become the recognized currency, because of their abundance? No; there is no appearance of such results; banks are becoming more plenty every day, but are becoming different in character, viz., dealers in Bills.——bill brokers. As such, they are to be welcomed as a great improvement on the small shaving fry which intest every commercial city. We look upon the gold discoveries as something of great beneficent good to man. The very abundance of an anti-corrosive metal, like gold, must be a benefit to mankind, whatever may be the purposes for which it is employed, in commerce and the arts.

Ballooning.

Mons. Petin has announced that he will make a balloon ascension on horseback, from this city, on the 5th of July, if the corporation furnish him with gas. We hope the city fathers will do this, so that the citizens will be able to enjoy the sight; it will do us all more good than to spend two or three thousand on dinners to Holland officers, where the Common Council do the most of the eating. We would add, however, that we should prefer that Mons. Petin would substitute his car for the horse.

Irish Industrial Exhibition.

The Irish Industrial Exhibition formally opened at Cork on the 10th of last month. The papers from Europe inform us that it promised much for the credit of old Ireland. the samples of fine linen work from the North Province of Ulster, were represented to be rich and unequalled by the finest French works of that kind. The British Association for the Advancement of Science is to meet in Belfast this year.

Juvenile Crime.

Out of 16,000 criminals committed to the Great Prison in this city, last year, over 4,000 were under 21 years of age. The Chief of Police considers that there are not less than 10,000 vagrant children in New York. Mr. Brace, who has recently travelled through Europe, and visited the prisons and vilest places in the cities, considers New York to be the worst place he has seen for the number and criminality of youth. He believes them to be the hardest looking and most depraved youth he ever saw. It is sad to reflect, too, that the majority of depraved and wicked young persons are females.

Ice Yet.

The "Lake Superior Journal" says, that on the 5th inst., the Captain of a trading sloop, bound to St. Louis River, found the Lake so obstructed with ice, that when within twenty miles of the river, he found it impossible to proceed, and had to return. The ice extended along the coast as far as could be seen, and was twenty miles wide. It was firm, hard, and of immense thickness. The oldest Indian does not remember ever having seen ice so late in the season before.

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For the Scientific American.

Davison's Nautical Challenge.

In the Scientific American of June 12, 1852, you have furnished an engraving of a pleasure boat belonging to Mr. Darius Davison, in connection with his challenge to the commercial world.

It is not my purpose, nor yet my province, to accept the challenge, or to propose a substitute—and should have allowed the temporary excitement you notice to have passed in silence, or to have spent its force in bombastic eruptions, but for the possibility of the proposal being regarded as having its basis on the principles of equity, by those who may not be familiar with the laws of buoyancy, or possess a knowledge of the laws of resistance. Inasmuch as the rivals in the proposed race are to navigate the same element, and as a consequence, must depend upon the buoyant properties of the same, to counteract the influence of gravity, would it not better accord with the principles of justice to measure both vessels in the same element? Or, if success is to be consequent upon obtaining the least amount of resistance commensurate with the greatest amount of buoyancy, should not both vessels be measured in the element from which the buoyancy and resistance is obtained? Does it in any equitable sense accord with the principles of fair competition, to measure the entire longitudinal displacement of one vessel in *water*, while that of the other is to be measured in *air*? What connection has the length of a vessel on deck with the determination of the amount of resistance to be overcome on the immersed part of a vessel? I am persuaded that you would answer, "none whatever." If the acceptance of the challenge of Mr. D. is designed by him to test the comparative merits of shape for speed,—equal length and an equal amount of displacement and stability should have been the guide of the competitors. JOHN W. GRIFFITHS.

Decomposition of Water by Heat.

When oxygen and hydrogen gases are exposed to a high temperature or the electric spark, they immediately combine and form water. Prof. Grove discovered that all the processes by which water may be formed are capable of decomposing water. The explosion of the mixed gases by the electric spark, is believed by him to be due to its great heat. Priestly decomposed water by passing it through heated tubes; and it also can be decomposed by incandescent platina. It is impossible to pass hydrogen gas through water without its taking up so much oxygen as to acquire the power of giving luminosity to phosphorus in the dark. The following are some of the ideas of Prof. Grove on this important subject:—

"It was found that if hydrogen and carbonic acid were exposed to the action of the ignited wire, there was a contraction of one volume, leaving a residue of carbonic oxide. If, instead of carbonic acid, carbonic oxide were employed, the mixed gases expanded in volume; and the carbonic oxide, taking oxygen from the water, was converted into carbonic acid. Here we have two dissimilar results produced by the same cause—by means of hydrogen we take oxygen from carbonic acid, and by means of hydrogen we take oxygen from water. If steam be formed in the eudiometric tube and acted on by the ignited wire, on cooling, a small bubble of gas is formed, which is found to be oxygen and hydrogen in the exact proportions in which they form water. This is the first result of the first action of the heated wire:—in a few seconds a small bubble of gas is formed, but if the action be continued for a week, it does not increase in quantity. It is, however, easy to remove the bubble as it is formed, and bring a fresh quantity of steam under the influence of the heated wire, and thus collect a quantity of gas which should be quite sufficient for any eudiometric examination. It might be objected that, as the wire was ignited by a voltaic battery, the decomposition was not due to the heat of the wire, but to an electrolytic action. This objection would not, however, be maintained by those who were acquainted with electrical phenomena. With the view, however, of removing all doubt, the use of the battery was entirely done away with, and all the results were obtained by the agency of heat alone, in the following manner:—into a silver tube, a capillary tube of platina is soldered, and this is again connected with a bent tube, which admits of the removal of any gas formed. The tubes being filled with distilled water, their ends being immersed in vessels of oil or water, the flame of a spirit lamp, urged by the blow-pipe, is brought to bear upon the capillary tube of platina, by which it is almost immediately brought to a white heat. The water is, of course, instantly converted into steam; and this steam is decomposed by the agency of the heat alone. By boiling, we thus convert steam into mixed oxygen and hydrogen gases; and this operation may be continued for any length of time by removing the bubble of gas formed, and bringing a fresh supply of steam under the influence of the heated platina. If fused globules of platina are dropped into water, there is immediately formed a bubble of oxy-hydrogen gas, which may be collected in an inverted tube."

These experiments correspond with others made by different persons; the presence of decomposed gases, in steam boilers highly heated, can thus easily be accounted for.

Errors in Philosophy.

The "Philadelphia Ledger" of the 19th inst., has a leader on "Errors of Philosophy." It discusses the question with its usual ability, and reviews a work of Dr Dods, on Electrical Psychology. The doctor, it seems, has adopted some erroneous notions, akin to those of Knox, on the human races. He believes that men should be confined to the latitudes in which they were born, and use only the food, drink, and clothing which those latitudes produce. These views are rather amusing and entertaining to us, as they are the same as those which used to be entertained by our worthy old grandfather, and which were rather a positive part of his nature. They are not, therefore, new to Dr. Dods, nor do we think he backs them up with any stronger arguments.

"He says that such is the case with the lower animals, which consequently suffer little from disease, which they instinctively know how to cure; and that the human race, especially in civilized communities, suffer greatly in health from violations of this law. In treating of acclimation, or "the philosophy of becoming acclimated," he says that each latitude has vegetables peculiar to itself, and that these constitute all existing varieties; and that the same species of vegetables differ from each other in different latitudes, as far as the climates and elements of soil may differ from each other. Hence, he adds, an apple, pear, or peach, produced in forty degrees of north latitude, differs much from the same fruit reared in thirty degrees of north latitude; that this is certain, because such fruits are the respective results of the surrounding elements which produced them, and that the same may be said of corn, wheat, rye, and other cereal grains, and of hemp, flax, cotton, and other vegetables used for clothing. And that, as animals eat vegetables of the second growth, the creation of vegetables having necessarily preceded that of land animals, the same may be said of beef, pork, mutton, poultry, and other meats. He then says that, as our bodies are made of water and the vegetables and animals on which we subsist, and are adapted to the climate and surrounding elements of the region where we were born and reared, a sudden change of climate, as a change from forty to thirty of north latitude, disturbs the due operation of the electric forces, constituting the habitude of the system, and on which its health depends, and produces disease. He says that all the substances of our bodies, derived from food and drink, are continually changing, whereby the fleshy particles are renewed annually, and the bones once in seven years; that on a change from forty to thirty degrees of north latitude, we are placed amid air, water, fruits, vegetables, and flesh, different from those left; that the old particles of our bodies, brought from one latitude, continue to escape as usual, to be supplied by those of another latitude; that this difference in the quality of particles creates a disturbing conflict, throwing the electro-nervous force out of balance, and producing disease; that, if we survive the operation, we become acclimated in about seven years, by acquiring in the new latitude, flesh and bones different from those of the old. The conclusions which he draws from these premises are, that those born and reared in forty degrees of north latitude should not drink the tea and coffe, or eat the oranges, lemons, citrons, pine-apples and other productions of other latitudes, nor wear the wool, cotton, silk, hemp, flax, or other materials produced in a foreign region of different climates from their own. He says the Creator has not erred in adapting all productions to their respective climates, and that man no more requires foreign productions than the beasts around him, who find their appropriate food and drink, and even medicine, where they were born."

There is much that is true in this. For hundreds of years our fathers and mothers were content with fish, beef, bread, milk, and beer. Were they less healthy or strong than our tea and coffee-drinking selves. It was the remark of an old English lady, one of our early settlers, she never had drank tea, and she was born before nervous diseases came into fashion. The principles, however, laid down in the above extract, are not correct; our guides are observation and common sense. The beneficial adaptability of food, for the system, wherever it is grown, or wherever it may come from, can only be determined by its effects. The acclimating of different kinds of grain, fruits, fowls, fishes, and animals in countries foreign to their nativity, has been easily and successfully accomplished in many countries to the great benefit of the people. It is even a natural law, but one above reason that the seed of potatoes and many vegetables produce better when taken from a distance. It is the same with some animals, yea, it is the same with some men. The Dutch Boors of South Africa, are giants in comparison with their forefathers. The difference of latitude between Holland and Africa is certainly very great. We know some men who never had a day's health in their native latitude, but who became stout and healthy when they moved ten degrees further south. We have no doubt but there are also reverse cases of this kind. The vegetable productions in various climates are liable to change, but those who may be born in a forrest should always feed upon the trees and shrubs growing in it, according to the Dod theory. Sugar, oranges, and many tropical productions are healthy as food, and conduce to the comforts of those who live in regions where they are not natural products. Is it not erroneous to suppose that the dweller on the Green Mountains can eat maple sugar with impunity, yea, with benefit to himself. but not cane sugar. The idea is preposterous. It is not latitude nor the natural productions of latitudes which affect the health of men or races so much as climate, we use the term in reference to the nature of the country, such as its hills, waters, swamps, plains, winds, heat, &c. No principle can be laid down in reference to the best latitude for a man, this can only be determined by experience, every man for himself. In the same latitude there are countries much healthier than others, and there are fruits and food grown in the latitudes in which a man is born, more unfit for his food than some which come from thousands of miles distant. While we say this, we must say that every man should be master enough of his appetite as to live on the products of the latitude in which he is born, for there is no doubt but they are perfectly capable of supporting life and rendering him healthy.

Manufacture of Wine.

The following is given as the mode of manufacturing wine:—

"The wine press, or *curvier de pressoir*, consists, in the majority of cases, of a massive shallow tub, varying in size from four square feet to as many square yards. It is placed either upon wooden tressles, or on a regularly built platform of mason work, under the huge rafters of a substantial out-house. Close to it stands a range of great butts, their number more or less, according to the size of the vineyard. The grapes are flung by the tub and caskful into the curvier. The treaders stamp diligently amid the masses, and the expressed juice pours plentifully out of a hole level with the bottom of the trough, into a seive of iron or wicker work, which stops the passage of the skins, and from thence drains into tubes below. Suppose, at the moment of our arrival, the curvier for a brief space empty. The treaders—big, perspiring men, in shirts and tucked up trowsers—spatted to the eye with spatches of purple juice, lean upon their wooden spades and wipe their foreheads. But their respite is short. The creak of another cart-load of tubs is heard, and immediately the wagon is backed up to the broad, open window, or rather hole in the wall, above the trough. A minute suffices to wrench out tub after tub, and to tilt their already half-smashed clusters splash into the reeking *pressoir*. Then to work again; jumping with a sort of spiteful eagerness into the mountain of yielding, quivering fruit, the treaders sink almost to the knees, stamping and jumping, and rioting, in the masses of grapes, as fountains of juice spurt about their feet, and rush bubbling and gurgling away. Presently, having, as it were, drawn the first sweet blood of the new cargo, the eager tramping subsides into a sort of quiet, measured dance, which the treaders continue, while, with their wooden spades, they turn the pulpy remnant of the fruit hither and thither, so as to expose the half-squeezed berries in every possible way to the muscular action of the incessantly-moving feet.

New Fluid.

An eminent scientific man, Baron Charles Von Reichenbach, has lately published a learned work, which has made some noise under the name of Dynamics of Magnetism. He believes he has discovered a new fluid or dynamic element in nature, distinct from magnetism, electricity, light, or heat, though somewhat resembling them. He gives it the singular name of Od. Those who are subject to, and perceive its influence, he calls sensitive. Such are capricous and whimsical, hard-to-be-pleased persons, easy to be put out of humor.

The phenomenon may be manifested thus: Lay a natural crystal, as large a one as possible, horizontally across a table, or the arm of a chair, so as to leave the extremities free. Let the sensitive person hold the palm of the left hand toward the ends of the crystal, at a distance of three, four, or six inches. In the course a of minute, he will acknowledge that from the apex of the crystal a cool current strikes the hand; but, when the hand is held towards the base, a sensation of luke-warmness is experienced. The first feeling is pleasant; the other disagreeable, and accompanied by almost a nauseating sensation, which if the hand be continued in the same position, seizes on the arm, and produces a feeling of fatigue. Persons not sensitive perceive nothing.

These opposite effects can be produced without touching the crystals; and with very sensitive persons at a distance of several feet, and therefore Reichenbach was of opinion that something emanated, or radiated, unknown to physical science. In darkness, this fluid has become visible of various colors and bell-shaped, now sparkling, then disappearing in a sort of fine mist. The same force may be found to emanate from other sources. Experiments made with a magnet are beautiful, and light and color are emitted. It may spring from a common source with magnetism and electricity, light and heat; and so, at present, they must be treated of as a special group of phenomena.

[The above we have seen copied into various papers. The experiments of Reichenbach were given to the world more than six years ago. He is a very eminent German philosopher, but all men are liable to make mistakes, the most learned as well as the most ignorant. The Baron, we believe, has dealt more with imagination than with facts in his electrical experiments. We do not believe one half of that which is contained in his works to which the above refers.

Austin Allen, a machinist in Rochester, cut his throat from ear to ear on Saturday, the 19th inst. He had been engaged upon an invention of his own, and failing to bring it into operation, his mind became deranged.

The town of Nashville, N. H., has voted to build an iron bridge across the Nashua river, at Indian Head, and appropriated a sum not exceeding $6,000 for that purpose.

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NEW INVENTIONS.

Improvement in Steam Boilers.

Frederick Ortlieb, of Matteawan, Duchess Co., N. Y., has taken measures to secure a patent for some very excellent improvements in steam boilers. He surrounds the sides of any cylindrical boiler, or boilers composed of a series of cylinders, with water spaces connected by pipes directly to the steam chest, and intended as a substitute for the ordinary masonry in the construction of the fire-chamber. The water in the spaces spoken of, is heated by the caloric which is (as fire-chambers are at present constructed) lost in the dead walls. These water spaces can be added to any boiler, old or new, to increase the heating surface.

A valuable improvement in the boiler relates to the collecting of the matter which floats on the surface of the water when the boiler is at work, but which forms incrustations when suffered to adhere to the plates of the boiler by cooling. A series of bell-mouthed vertical funnels convey the dirt and floating matter from the surface by blowing out, these matters being conducted out by the funnels from near the surface, and not in the common way of blowing out. In this improved boiler, priming and incrustations are prevented as has already been demonstrated by its actual operation.

Improvement in Smut Machines for Cleaning Grain.

H. L. Fulton, of Chicago, Ill., has taken measures to secure a patent for an improvement in smut machines. The casing is of a circular form, and composed of bars of metal slats like other smut machines, excepting the outside form of the bars, which taper on both sides outwards; this allows the impurities, when they escape through the slits from the inside, to pass off more freely than if the bars were not inclined. The interior construction and arrangement of the parts of this smut machine are different from others, and quite novel. The interior corrugations or projections for scouring the grain and separating the impurities from it, are prismatic, and there is a circular concentrator secured to the inside of the case, and placed between each pair of the revolving scouring plates, and inclining towards the centre of the machine, for the purpose of receiving the grain as it is thrown by the fans and scouring plates. There are peculiarities about this machine which we cannot describe without engravings, but, from what we have seen of it, we believe it is a good one.

Improvement in Cooking and Culinary Vessels.

Saml. Cotter, of Ansonia, County of New Haven, Conn., has taken measures to secure a patent for improvements in culinary vessels, the object of which improvement is principally to allow the vessel to be set on live coals without smothering the fire, but allowing it to have free and perfect combustion. The bottom of the vessel is made concave on the outside, and convex on the inside. When a vessel having a flat bottom is placed with water on a clear burning fire it crushes down the coals and prevents free combustion. The concave outside bottom of these vessels will also present a greater heating surface, and cooking will be done quicker with a saving of fuel by them. For cooking in furnaces during warm weather they will economize the fuel.

Marston's Breech Loading Rifle.

We recently witnessed some interesting experiments, a short distance beyond Jersey City, with the breech-loading rifle of Mr. Marston, of this city. A number of gentlemen interested in good shooting irons were there to witness the experiments and shoot for themselves. The distance was 500 yards and six rifles of the same kind, but of different pattern and size, were employed. There was evident satisfaction manifested at the results. The carrying power of the rifle is unquestionably great; the simplicity of its construction places it without a rival for loading at the breech.

We have received a letter from L. F. Munger, of Albion, N. Y., with a sketch of a breech-loading rifle invented by Mr. Savage, of Windsor, Vt., some 10 years ago. It appears to be a very good rifle.

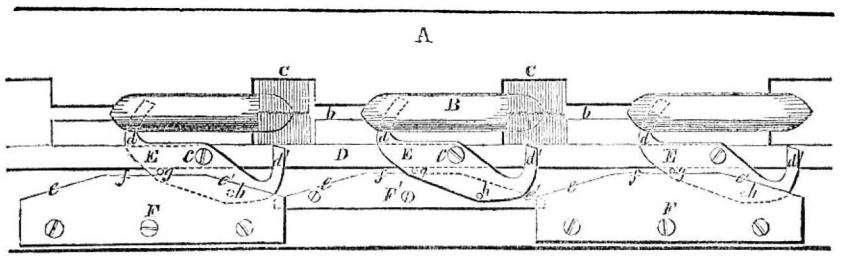
Improvement in Grain Threshers.

Benjamin Hoyle, of Martin's Ferry, Belmont Co., Ohio, has taken measures to secure a patent for a useful improvement in grain thresher and cleaners, the object of which improvement consists in screening and fanning, and also threshing a portion of the grain termed tailings, twice at one operation, and with one and the same machine.

Devonshire Cream.

The clouted cream of Devonshire is prepared by straining the new milk into a shallow dish, into which a little warm water has been previously put; and after allowing it to stand from 6 to 12 hours, it is carefully heated over a slow fire or hot plate till the milk approaches to the boiling point; but it must not actually boil, or the skin of cream will be broken. The dish is then removed to the dairy, and the cream allowed to cool, when it may be used as cream or made into butter.

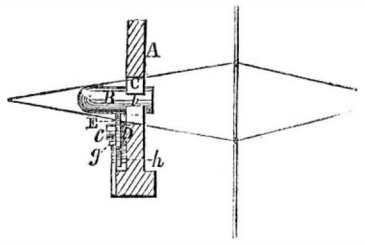
IMPROVED SHUTTLE MOTION.---Fig. 1.



The accompanying engravings illustrate an improvement in the shuttle motion of looms, invented by W. H. Robertson, of the city and county of Hartford, Conn., who has taken measures to secure a patent for the same.

Figure 1 is an elevation of the front part of the lay of a loom, having the improved shuttle attached. Fig. 2 is a transverse section. The same letters refer to like parts. This improvement is designed for looms for weaving narrow fabrics, of which several pieces are woven at the same time, such as coach lace, carpet binding, &c. It consists in driving the shuttles by a number of small rocking jacks, one for each shuttle, in combination with a number of double inclined guide plates, which are fixed on the lay, the said jacks having two fingers each, and attached by pins to a rod which is moved parallel to the movement of the shuttles. By the movement of the rod, the jacks are also moved, and by contact with the inclined guide plates, are caused to rock. The shuttles are driven by the fingers of the jacks, which act on opposite ends of them, one finger of each jack being always in contact with its shuttle. The rocking motion of the jack causes one finger to drive the shuttle one half of its flight, and the other finger the other half, one taking it as the other leaves it, the finger which is not in contact always being moved sufficiently out of the way to clear the warp. A represents part of the lay, or a board attached to the lay. B are the shuttles which run in a slot, *b*, in the board, A. C are openings in the board, A, for the warp; D is the rod to which the jacks are attached; it slides longitudinally through guides, *a*, attached to the board, A, receiving its motion through any convenient means from the driving shaft of the loom. E are the jacks, which are made of thin metal plate, and hung so as to rock freely on pins, *c*, secured to the rod, D. The two fingers, *d d'*, of each jack are arcs, described with the same radius from the centre, *c*, and enter small recesses in the under side of the shuttle near its ends; F F' are the double inclined guide plates, which are placed alternately on opposite sides of the jacks, the one, F, being in front of, and the other, F', behind the jacks. The upper edges of these plates are all of the same form, having two inclines, *e* and *e'*, and a horizonlal part, *f*, between the inclines, except that the extreme end plates, F' F', are only half the length of the others having only one incline. Each jack has two pins, *g*, *h*, which are on opposite sides of the centre, *c*, and on opposite sides of the plate; these pins run along the top edges of the guide plate, F F.'

FIG. 2.



As the whole line of shuttles move simultaneously, and every corresponding part of the motion is in the same position at the same time, the operation of the whole will be understood by the description of a single one. The rod, D, is supposed, in the engraving to be moved towards the right, and the point of the shuttle, in fig. 1, is just commencing to pass through the open shed, being driven by the finger, *d*, which is held up by the pin, *g* running along the highest or horizontal part, *f*, of the guide plate, F or F', the finger, *d'* being depressed sufficiently to clear the warp. By the time the pin, *g*, reaches the commencement of the incline, *e'*, the pin, *h*, reaches and commences ascending the incline, *e*, of the next guide plate, and the finger, *d'*, commences ascending while *d* is withdrawn from the shuttle. The fingers are of such length that one catches the shuttle just before the other leaves it, so that the progress of the shuttle is not arrested by the changing of the fingers. By the time the pin, *h*, reaches the top of the incline, *e*, the finger, *d*, is withdrawn far enough to clear the warp, and the shuttle is carried the remainder of its flight by the finger, *d'*, which is held up by the pin, *h*, running along the horizontal part, *f*, of the guide plate, which at the same time holds down the finger, *d*. The shuttle and jacks must be long enough to allow the fingers to rise and fall while the warp is between them. When the rod, D, moves in the opposite direction, the operation of the several parts is precisely the reverse of that described.

More information may be obtained by letter addressed to the inventor.

A New Flax Dressing Machine.

On Wednesday last week we examined the new flax and hemp dressing machine invented by L. S. Chicester, mechanical engineer, No. 57 Chambers street, this city, and for which a patent was granted a short time ago. The machine is in the agricultural implement factory of F. Neshwitz, Williamsburg, and presents some peculiar and excellent features. The object of Mr. Chicester, as embodied in his machine, is thoroughly to break flax, or hemp, or other fibrous materials, and separate the woody parts from the fibrous, and the fibrous from each other, by one single continuous operation, and to effect this by a mechanical operation in which the material shall be grasped and held at two different points, and on opposite sides, and held so loosely as to permit slipping without undue or injurious strain on the fibres, and yet so firmly as to permit the two surfaces that grasp it, to slide back and forth nearly at right angles to the line of motion of the material, and by the side of other surfaces that grasp it at another point, and at the same time leave the grasping surfaces to move along with the material, that other surfaces may in succession grasp it at different points along the length of the mass, until the whole of it is passed through, and so on with every portion of material that is fed in. On the rough flax to be broken and cleaned, there is exerted a mechanical action resembling that which would be produced if a piece of the material were grasped at one point by the thumb and finger of one hand, and held at another point by the thumb and finger of the other hand, then moving the two hands in opposite directions until the material is bent in two places nearly at right angles. The action of the machine is then like rubbing the flax without drawing the fibres apart, so as to break and loosen all the woody parts and impurities which adhere to and connect the fibres. This is the principle of the machine's action; the flax which it dresses is beautiful; makes less tow than any flax breaker we have seen in operation. As we intend to present engravings of it in a few weeks, we will not say any more about it at present, only that it is well worthy of examination by all those interested in the flax business.

Canal Locks.

A new claimant for posthumous fame has been brought to notice by T. D'Arcy McGee, editor of the Celt, now published at Buffalo. He states in his history of the early Irish settlers in America, that Christopher Colles, an Irishman, who arrived in this country about the time Fulton was born, delivered, in 1772, at Philadelphia, a series of lectures on the subject of Lock Navigation, and was the first person who suggested, to the Government of this State, canals and improvements on the Ontario route. He was generally considered as a visionary projector, and his plans were treated with ridicule, and frequently viewed with distrust.—[Exchange.

[Locks for canals were known and used in Europe and Asia centuries before Colles was born. Canals with locks were also known, long before he knew anything about them. The Carlsgraf Canal, in Sweden, had two stone Locks built in 1768, of 200 feet long, by 36 broad. It is not known to many that Col. John Stevens, of Hoboken, suggested the construction of a railroad in place of the Erie Canal, when it was first projected. Canals were then well known and covered all Europe, but the sagacity which projected a railroad then, was certainly of a more original cast than that of Mr. Colles, nevertheless the Irish engineer may have been the means of doing much good, but where is the proof of his being the first who suggested canals and improvements on the Ontario route?

Villainous Obstruction on a Railroad.

The "Cold Water (Mich.) Sentinel," of the 13th inst., gives an account of a terrible outrage committed on the Southern Road, near that village, by the breaking of a switch. for the purpose of throwing the express train off the track. The train arrived from the east in the night, at a speed of about thirty-five miles an hour, and the first notice of danger was given by the concussion of the train. The speed was such that the locomotive was driven into the bank clear up to the smoke-pipe. One fireman was thrown through the window, his life being saved. The engineer, Harvey Spalding, and the other fireman, were caught between the tank and fire-box.

Three of the try-cocks were broken off, and the steam came pouring out, literally scalding and burning the unfortunate victims to death. They lived about two hours in the greatest agony, all efforts to relieve them from their position availing nothing. All the cars were smashed to pieces, but, providentially, none of the passengers were killed.

The perpetrators of this outrage deserve to be burned at the stake. There is no class of men more exposed to dangers than our engineers; they are the most important class of men in our country. They are of more value to the community than all our generals and political declaimers, and yet we venture to say, nine-tenths of our people never think of this—they do not know it. Does that fine lady, or that spruce gentleman, on car or steamboat, know who has the care of their lives—who is the greatest man on the train or boat? No. Look! there he is, standing by the engine, with an old blue jacket on—that's the *engineer*; mind, don't forget this.

The Albatross Steamer.

This fine steamship has been sold for $85,000, to run between New York and Quebec touching at Halifax and Pictou. It is said that one of the purchasing parties has obtained a grant from the British Government to carry the mails from Halifax to Quebec.

Steam plows are not uncommon now in England; Lord Willoughby D. Eresby, employs two of them three days every week.

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Scientific American

NEW-YORK, JULY 3, 1852.

New York and Montgomery Mining Co.

On Wednesday, last week, in company with the directors and several scientific gentlemen, we paid a visit to the mines and workshops of the New York and Montgomery Mining Co., located in the town of Mamakating, in Sullivan County, this State, on the Delaware and Hudson Canal, forty miles from its terminus at Rondout, N. Y. Leaving the New York and Erie Railroad, at Middleton, the party proceeded in carriages to the mines, a distance of twelve miles, through a most fertile and highly picturesque region. From the top of the Shawaugunk Mountain, the view is sublime. The mine in question is situated on the western slope of this mountain, about half a mile from its base, and has been worked for a number of years, the principal object, heretofore, being to obtain the lead from the ore, which yields only from 15 to 20 per cent. of that metal. Within the past three years it has been found that the ore is more valuable than was at first supposed; the skill of the chemist was wanted to unfold its riches. This, we believe, has been most successfully accomplished by E. L. Seymour, a pupil of the celebrated Berzelius, who has arranged all the plans of the workshops, and conducted a series of experiments with a view of testing the quality of the ore and the economy of working it successfully. The ore, by analysis, has been proven to contain 16 per cent. of sulphur, from 25 to 30 of zinc, 15 to 20 of lead, a half to one per cent. of silver, from 2 to 3 of copper, and from 3 to 5 of iron, besides some cobalt and arsenic. It has been ascertained that fifty per cent. of the ore is convertible into merchantable minerals, the zinc being reduced to the white oxide, which is well known to be an excellent paint. The ore is abundant and is found combined principally with quartz and granite rock. Twenty tons of the ore produce four tons of the oxide of zinc.

The ore, without any stamping, which is an expensive and slow mechanical operation, is placed at once in calcining reverberatory furnaces, where the volatile products are driven off, and those that are valuable saved. The sulphur of the ore, which is driven off, is not lost, but saved, and made available in the form of sulphuric acid, by a patent process of Mr. Seymour's. This acid is used to reduce the different metallic ores to sulphates (except the lead), after which they are precipitated and made available as merchantable products, such as the oxide of zinc spoken of, the sulphate of copper, the sulphate of iron, and its red oxide for polishing. The lead is made into the red oxide—litharge—and thus all the metallic sulphurets of the ore are reduced to useful commodities, extensively used in the arts. The white zinc is used for painting; the sulphate of copper is used in great quantities by dyers and so is the sulphate of iron. The great beauty of the chemical manipulations brought into requisition in the several processes, by Mr. Seymour, is the using of one product of the ore for the reduction of several others, whereby the expenses are greatly reduced, because nothing is lost that is valuable, for the sulphuric acid that is used to reduce the copper and zinc, is used over and over again. The operations are conducted with great rapidity, for the calcining furnaces can be charged every two hours, and the metals are taken up by the acid, in large leaden vessels. Ammonia is employed to precipitate the zinc from its acidulous solution, and the white oxide, thus obtained, is a beautiful article. The value of any process depends upon its economy, as compared with others, for the production of the same results; the general economy of the processes introduced by Mr. Seymour, has rendered the mine belonging to the New York and Montgomery Co., of great value. The office of this company is at No. 94 Wall st., N. Y.; we make mention of this, in case some of our readers may wish to make further inquiries and obtain information about something in which they are themselves interested. It always gives us pleasure to see and hear of new triumphs in art. We hope the improvements of Mr. Seymour, will be the means of rendering valuable many fractious ores of our country.

Hecker's Patent Self-Raising Flour.

On page 285, this volume, Scientific American, it will be remembered, we made some remarks in regard to the Self-Raising Flour manufactured by Messrs. Hecker & Brother, of the Croton Mills, this city. We stated in that article, that if tartaric acid and saleratus were used as the fermenting materials, "we hailed its introduction."

On page 298 we published two letters as answers to our previous remarks:—the one from Messrs. Hecker & Brother, which states plainly that the materials used by them in the manufacture of their Self-Raising Flour are the same healthy effervescing substances respecting which we used the commendatory language in the article just mentioned. The other letter was from H. A. Smith, corner of North Second and Seventh streets, Williamsburgh. This letter was written "to correct us," because we spoke, as the writer says, "in advocating terms of the Self-Raising Flour." We published Mr. Smith's communication to show our readers, generally, how important it is that any new chemical invention, like the "Self-Raising Flour," for example, should be rightly set forth to the public, in scieniific publications, by the inventor or assignees, and to show to Messrs. H. & Brother, particularly, the importance of their article, in order to allay any misconception that might be afloat concerning their process of rendering their flour effervescing, we remarking, in a note at the bottom, "we have no conception of sour flour being used."

The invention of Self-Raising Flour, without the use of deteriorating ingredients, is an important one, because it relates to a matter in which every person is individually interested, therefore it was but proper that Messrs. H. & Brother should make the statement they did through our columns, that their patent flour might not be looked upon with distrust by the user, and that the public might be apprised of what ingredients they were feeding upon.

About the time Messrs. Hecker & Brother sent in the article referred to for publication, they also sent to our residence a small quantity of their Self-raising Wheat, Buckwheat, Graham, and Indian Flour, that we might test the quality of the new article ourselves, and we are happy to state that we have been in constant use of the "Self-Raising Flour" since we first tried it, and our table was never provided with as good hot rolls and corn cakes since we commenced housekeeping.

That the raising ingredients, patented by Henry Jones, and used at the Croton Mills, are as healthy as the ingredients used by housekeepers generally, for fermenting purposes, we have not the least doubt, and as far as our experience has gone, and we have taken a good deal of pains to investigate the matter thoroughly, we believe that most housekeepers would experience less trouble in their cooking department, were they to furnish their cooks with this "Self-raising Flour."

Since publishing the letters of the Messrs. Hecker and H. A. Smith, and after using the "Self-Raising Flour" until we were perfectly satisfied that the statement of the former gentlemen were correct, while that of the latter was incorrect, as far as the statement implied the Heckers' brand, we took the trouble to call upon Mr. Smith, to interrogate him personally as to what knowledge he had of the "Self-Raising Flour" to which he alluded in his letter, which was published in the Scientific American. His reply was, he had no allusion to "Self-Raising Flour" put up at any particular mills; in fact, he did not know that Hecker & Brother were engaged in the business of putting up flour, notwithstanding the very article to which he was replying made mention of them, and he expressed regret that his letter should have implied that it was their flour which produced the deliterious result mentioned in his letter. Mr. Smith said the meaning he desired to convey was, that he had had experience in an article known to him as "Self-Raising Flour," and had known the result to prove as he stated, but he was entirely ignorant as to who put the article up, and presumed it was a base imitation of the genuine article put up by Hecker & Brother, at the Croton Mills.

The above statement concerning the publishing of Messsrs. Hecker & Brother's and H. A. Smith's communications, on page 298, seemed called for, from the fact that the letter of Mr. S. seemed to convey an impression which the writer did not design, besides which we have had an opportunity of testing the matter ourselves since those articles appeared, thus rendering us able to speak of the subject more understandingly.

Strange Case of an Application for the Re-issue of Patents.

A pamphlet has recently been published by George W. Beardslee, of Albany, N. Y., giving an account of the rejection of an application for the re-issue, upon new and amended claims, of the letters patent originally issued in 1838 to Barnabas Langdon, one patent for planing boards, and another for planing shingles. The agent who made the application for the re-issue was Charles M. Keller, of New York city, and to us it appears to be one of the most extraordinary attempts to get a re-issued grant of a patent that has ever come to our knowledge; yea, we believe it has no parallel in the whole history of patents in this or any other country. In 1838, Barnabas Langdon, of Troy, N. Y., obtained two patents, one for planing boards and the other for making shingles. The models, drawings, and description of them were perfectly correct and in harmony. After the patent had run fourteen years, up comes the application, through Mr. Keller, for a re-issue, claiming that which was not in the model, not in the drawings, not in the specification, and which was totally different from the old patent. The application was persisted in with great pertinacity, but was rejected out and out, and the reasons of rejection by the Patent Office, are among the ablest legal papers on our Patent Laws with which we are acquainted. We suppose they are the production of Mr. Fitzgerald, as he has charge of this class of machines; and whatever may have been said about other decisions which he has made, there can be no mistake about his abilities; we wish some of our U. S. Judges possessed a like amount of knowledge and legal acumen, in respect to patent matters. The first paper of rejection was issued by the Patent Office on the 20th of last February. It says, "the *yielding* and bar mouth-piece, which is the basis of the principal claim, is not found in the specifications, drawings, or models, in either of the original applications, nor in any way alluded to in either of the original patents, but, on the contrary, *stationary bars*, constituting a part of the frame of the plane stocks are found described in both the specifications, shown in both the drawings, and clearly illustrated in both the models." It then goes on to state that, to admit the *yielding bar* in front of the first cutter, the *stationary bar*, (that which was shown and described) would have to be cut out, as "the one would be utterly futile without the other, and *never* could have been contemplated for the purpose set forth in the new specification" —that which was attempted to be obtained as the re-issued patent. Our Patent Laws provide for the correction of a defective specification, by surrendering the patent, and giving a more full and clear description in a new specification, which, if granted, is termed, a re-issued patent. The law, however, does not provide for the introduction of anything that was not in the original model, drawings, or specifications, and especially not for any thing contradictory and entirely different. Mr. Keller knows well enough they do not, yet this was attempted in the application for their re-issue. The way this was done was by obtaining *ex parte* testimony—affidavits from a number of men, and exceedingly contradictory ones they are, it seems. The object of obtaining such a re-issue is best known to those who applied for it; the policy of obtaining it was worthy of Talleyrand or Metternich. If obtained it could have been used to harrass inventors of planing machines and shingle machines, who had obtained patents since 1838, and many others who are using the yielding bar. It could have been used, not for the purpose of restraining patent pirates, but for pirating the rights of other inventors and patentees, and oppressing the public. If obtained, it would have contravened the provisions of the patent law, and introduced a most pernicious practice into our Patent Office.

The Report of Examiner Fitzgerald is pointed, clear, and sound on this point. Here is what it says:—

"To hold that a clear and specific description, model, and drawings of one combination are, within the meaning of the law, defective description, &c., of another and radically different combination, would be to unsettle all existing patents, and to offer a premium for fraud and concealment in all those to be granted in future.

By this interpretation, any existing patent for a planing or other machine, may, by *ex parte* parole testimony, be transformed into another patent, embracing and claiming the most important features of any subsequently invented machine, and thus deprive the honest inventor of the fruits of his labors. It would throw aside all the safeguards afforded by records and parchments, and cause patents to rest entirely upon *ex parte* parole testimony, and subject their most important features, and the sacred rights of parties, to the vicissitudes of human memory, and the perversions of fraud and perjuries. The files and records of the party's own acts at the time, stand out prominently as landmarks, pointing the future to the nature of the invention and the intentions of the patentee. They cannot be charged with falsehood, nor can defect of memory be imputed to them. They cannot be disregarded, and while an enlightened and legal liberality should be extended to the unfortunate inventor, who, through 'inadvertency,' has failed to secure his rights; a sleepless vigilance should ever be exercised by this office, lest the pretended re-issue of a patent for one machine, should be resorted to as a mere cloak to obtain a patent for another.

This office and the courts have, in my judgment, gone quite far enough in modifications of patents by parole testimony, and I cannot take the responsibility of extending the rule further."

This covers the whole ground, in our opinion, without any more controversy, as affording sufficient and powerful reasons for rejecting the new claims for the re-issue. These reasons, however, did not satisfy the parties making the application; other arguments and additional affidavits were presented to the Patent Office, in order, if possible, to obtain the wicked claim—we cannot call it anything else. On the 4th of last May, the Patent Office, in a still more elaborate letter, rejected the application again. This last letter of rejection places some of the affidavits in a most commanding position. The affidavits of witnesses for the re-issue stated that the *yielding* mouth-piece, that for which the new re-issued claim was wanted, had been reduced to practice in the early part of 1836, while Barnabas Langdon, in the early part of 1837, swore, "he did know the importance of it." Here is also some exceedingly curious remarks in the said report:—"B. Langdon admits his original model had not the spring bar mouth-piece, and gives the same reasons for omitting it as for admitting the similar feature in the board planing machine. When said Langdon made this admission, he did not remember that his first model had been burnt, but when he recollected that fact, he immediately contradicted himself, and states that the original model had the spring bar,—it is certain the model will never rise up to contradict him. This office cannot believe that the yielding throat constituted any part of the original invention." The rejection of this application was right; but little dependence can be placed on the testimony of witnesses, whose memories have to be racked over the space of fourteen years, to contradict the model, drawings, specification and affidavit of the inventor himself, when he made his original application, nay, when he contradicts himself who can judge whether his first or last affidavit is right?

Judging from this case, we are more and more convinced that the re-issue of the Woodworth Patent, in 1845, fifteen years after the patent was granted, and when the inventor was dead, was a wicked act, we cannot call it anything else. This is our honest conviction. We wish to see the honest rights of every inventor faithfully protected, but it is certainly wrong to obtain, by any means, a document held to be legal and prima facie evidence of a patented invention, claiming that which one never invented, and never originally claimed. We like to see all men guided by honor, honesty and fair dealing.

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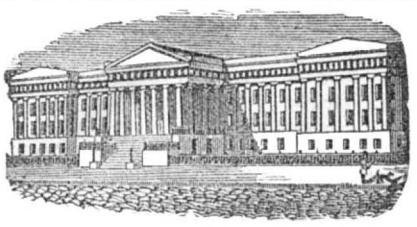

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 22, 1852.

WASHING AND AMALGAMATING GOLD, ETC.—By Alex. Barclay, of Newark, N. J.: I claim the manner described, of constructing the hollow revolving cylinder, to wit, with brackets along its periphery, and an inner partition near its discharge end, for separating, washing, and causing gold to amalgamate in the manner described.

VALVES FOR PUMPS—By J. R. Bassett, of Cincinnati, Ohio: I claim the device consisting of a cylindrical box valve, with its induction openings, and its side or water-way openings, and its eduction openings, and of a valve chest adapted thereto, with its induction, and side or water way, and eduction openings, corresponding to the openings in the valve box, the whole, in connection with the usual water-ways and barrel of a double acting pump, furnishing the parts necessary to the operation of such a pump, thus obtaining from a single valve, deriving its motion from the outflowing and inflowing currents, the result for which several separate valves have hitherto been needed, substantially as described.

BOMB LANCE FOR KILLING WHALES—By C. C. Brand, of Ledyard, Ct.: I claim the mode of sustaining the fuse rope in the fuse tube, and preventing the fire of the charge of the gun from passing by the fuse rope and into the bomb, viz., by the two metallic tubular plugs cast around the ends of the fuse rope, and into the fuse tube, and arranged substantially as specified.

I do not claim the application of wings or feathers to a shaft or rod, to direct its passage through the air; but I claim my improved mode of making them, viz., of vulcanized india rubber, or other equivalent, so that they may not only resist the destructive powers of the explosion, but be folded down on the shank, when put into a gun barrel, and have the property of elasticity, such as will enable them to unfold themselves after being discharged from the gun.

HEAT RADIATOR—By Merrill Colvin, of Rochester, N. Y.; I claim the combination of the flue, the cylindrical flue, the flue, H, the receiver, the pipe, and the open space, all operating in the manner and for the purpose substantially as described.

HORSE-POWERS—By A. D. Crane, of Newark, N. J.: I claim, first, the method of combining and arranging the pallets, as connected by a joint with the levers, in such a manner that, by the action of the teeth of the main wheel against the end of these pallets, an oscillating motion is given to the levers, and by such motion and the aid of the connecting rods and cranks, a rotary motion is produced; but I do not claim the application of connecting rods and cranks for producing such rotary motion.

Second, I also claim the method of combining and arranging with the parts claimed, the three eccentric wheels running together in such a manner that while the motion of the middle one is uniform, that of the other two on which the cranks act are irregular, alternately, that irregularity being required for the purpose of giving to the middle eccentric wheel a direct motion, not subject to being reversed, as it would be by using common wheels, all as described and for the purpose set forth

Third, I do not intend, by the foregoing claim, to limit myself to the application of this invention to horse powers, but to apply it, as I may think proper, to other purposes, for driving machinery, when speed is required.

DUMPING WAGON—By A. V. Cross, of Washington, D. C.: I claim the arrangement of the adjustable bar or incline and screw in combination with the rollers (three) all operating in the manner substantially as shown.

WROUGHT NAIL MACHINERY—By Daniel Dodge, of Keeseville, N. Y.: First, I claim the combination of a series of hammer faces with gripers, both a rotary and progressive motion, and so arranged as to convey the blank between the several pairs of faces successively, at the same time revolving it so as to present different sides successively to the action of the hammers.

Second, I claim such an arrangement of the several hammer faces which act successively upon the blank, with regard to the distance of the lines in which the gripers move, that when the gripers move forward in said line, thereby conveying the blank from one pair of faces to another: the successive strokes which it receives will fall on different points, thereby reducing different parts of it successively to the required size.

Third, I claim, in combination with such an arrangement of the faces with respect to the gripers, such a gradation in the nearness with which the several pairs, respectively approach when they strike, that the several parts of the blank upon which they respectively act will be reduced to different sizes, and that the combined effect of the whole will be to reduce the nail to the proper form.

Fourth, I claim the combination of the two kinds of faces, broad and narrow, with gripers so arranged as to present the blank to the action of the narrow ones until it is suitably elongated, and subsequently to that of the broad ones to receive a finish.

Fifth, I claim the arrangement of a set of gripers upon the interior of a circular hub or frame, in combination with hammers placed in or near the centre of the circle in which they are arranged.

Sixth, I claim adjusting the gripers by means of a spring or its equivalent, so arranged as to press them towards the hammers to their proper place, allowing them to recede as far as the lengthening of the nail requires, while the hammers are acting, and causing them to return again when the hammers are withdrawn.

Seventh, I claim such a combination of stops for limiting the approach of the hammers to each other, with cams or their equivalents, for forcing them together, as to diminish the inequality, which unequal resistance between the faces has a tendency to cause the springing of the parts which produce the stroke, thereby rendering the effect of the strokes more uniform.

SEWING MACHINES—By Wm. O. Grover, of Boston, Mass., and Wm. E. Baker. of Roxbury, Mass.: We claim the arrangement, as described, in a sewing machine, for feeding the cloth along, consisting of a notched bar. which has a vertical or up-and-down motion for fastening the cloth upon, and releasing it from the notches of said bar, by striking it against a yielding plate, and a lateral motion, or motion forward and back for feeding the cloth along after each stitch, substantially as set forth.

We also claim a circular instead of a straight horizontal needle for spreading the loop of the thread of the vertical needle, substantially as described.

FOOT CAR—By Nehemiah Hodge, of North Adams, Mass.: I claim suspending each of the treadles upon which the passenger operates, from the same side of the axle, the treadles being so arranged as to rotate the axle, whether they be applied both together, or one at a time, alternately, and through said axle give motion to the driving wheels, substantially as described.

I also claim combining with the axle and driving wheels, the fixed ratchets and spring pawls, for the purpose of giving the driving wheels a continuous motion in one direction, whilst the axle may have an intermittent motion in the same direction, as described.

CLOVER HARVESTERS—By John Krauser, of Reading, Pa.: I claim the hinged board, in combination with the movable cutter frame, and the platform, as set forth.

Second, I claim the shield, the same being constructed, applied, and operated in the manner and for the purposes set forth.

Third, I claim the combination of the two levers, the one being constructed at its posterior end with slot and pivot pin to admit of antero-posterior movement, and at its anterior end with supports for cogged gearing, so that while the levers raise and depress the cutters, they also contribute to connect and sustain the gearing for driving the cutting reel.

DIVIDED RAILROAD CAR AXLES—By W. S. Loughborough, of Victor, N. Y.: I do not claim surrounding a divided axle with a tube; neither do I claim making semi-axles of a conical form, but what I claim is the conical semi-axle in combination with the tube, constructed as described, for the double purpose of giving the greatest strength to the axle itself with a given weight of metal, and of increasing the strength of the tube in the centre, without a corresponding increase of the external diameter thereof.

Again, I do not claim a hollow divided tube, attached rigidly to the wheels and revolving upon an undivided axle, to which it is secured by flanges, rings, and bolts.

But I claim the peculiar manner of coupling the wheels and semi-axles to the hollow tube surrounding said axle, by the use of the groove in the hub of the wheel, into which the flange of the tube enters, in combination with the ring secured to the wheel by bolts, as described, for the three-fold purpose; first, of enabling the wheel and its semi-axle to revolve independent of the tube, and of strengthening the axle at its weakest point where it enters the wheel; and, lastly, to prevent the end of the tube from splitting out, by thus removing half the strain from the lower to the upper side, in the manner set forth.

STEPS AND BEARINGS OF MILL SPINDLES—By T. S. Minnis, of Meadville, Pa.: I do not claim upbearing or sustaining the gudgeons of shafts, or other revolving bodies, by liquids, when packing and force pumps are used for giving the desired pressure to sustain the weight of said shaft or other body, and to prevent the lubricating liquid from overflowing.

But I claim lessening the friction of mill spindles and other heavy revolving bodies, by upbearing and sustaining the gudgeon of the same upon any lubricating liquid, by the use of the hollow lighter or case, with case A, for containing said liquid upon which said lighter revolves, or their equivalents, said lighter being proportioned to the weight it is designed to sustain, and arranged and connected with the shaft, as described, or in any other manner substantially the same.

PLANING MACHINES—By N. G. Norcross, of Lowell, Mass.: I do not claim the combination of one or more stationary planes so arranged that while one or more remove the rough surface of a board, the rest or last shall finish or produce on it a smooth plane surface; but I claim, when placed so as to operate on one side of a board, a cylindrical rotary cutter for roughing and reducing, which cuts from the unplaned to the planed surface, in combination with a stationary cutter placed behind, and as near thereto as may be, for finishing, without pressure rollers or pressure bars of any kind, whereby I am enabled to operate with greatly diminished power, and the rotary cutter will cut up and throw off the shavings from the stationary cutter, and the boards will be reduced to an equal thickness and a smooth surface.

MACHINES FOR PREPARING FLOCKS—By J. R. Peters, of New York City: I claim, first, the combination and arrangement of the fan wheel, and its combination with the elastic grinding bed or grater, constructed as described, or in any manner substantially the same, for effecting the feeding, separating and discharging of the flocks, and other matters mixed therewith, in the manner described.

Second, I claim supporting or attaching the concave grater or grinding bed, to the frame, by springs or other elastic material, for the purpose set forth.

Third, I claim the reflectors and their arrangement in the machine, in the manner and for the purpose set forth, the whole being combined and operated substantially as described.

FLUID METRES, ETC—By Wm. H. Lindsay of New York City: I claim, in combination with a force pump and a piston or plunger, actuated by water or other fluid forced from the same, the air vessel and the drop valve arranged and actuated substantially as described, whereby the measuring piston or plunger is caused to pause at the end of each stroke in either direction, substantially in the manner and for the purposes described.

I also claim supplying the pump chamber and the metre chamber, through valves, arranged and operating as described, and loaded in proper relative proportions, or supplied from heads of proper proportional height, for the purpose described, height of head of supply, or amount of load on the valves being equivalents, producing the same results.

I also claim actuating the counter through the agency of a rack, and a segment cog arranged substantially as described, whereby any movement of the metre piston, or plunger, less than a whole stroke, is counted up in proper proportion by the counter.

PLOWS—By David Swartz, of Thomas Brook, Va.: I claim combining a plow and harrow in one implement, that is to say, attaching a comb or rake, or its equivalent, to the rear and upper end of the mould board, to comb out and pulverize the soil on the bottom of the furrow, as it is turned up, substantially as set forth.

TIME PIECES—By S. R. Wilmot, of New Haven, Ct.: I claim insulating or separating the clock frame from all contact with the case, by intermediate packings of india rubber, or other non-conductor of sound, substantially as set forth.

IMITATION STONES—By Chas. Isles, of Birmingham, Eng. Patented in England April 26, 1849: I do not confine myself to the details, as described, so long as the peculiar character of either part of my invention be retained.

What I claim is the production of ornamental surfaces on picture frames, inkstands, other articles, and on walls and other places, and on different matters, by applying thereto colored silk, waste or other colored fibrous substances, combined with cement in such manner that the colored silk, waste, or other colored fibrous matter used, shall produce a veined or marbled character.

RE-ISSUES.

MACHINE FOR CUTTING PAPER AND TRIMMING BOOKS—By F. J. Austin, of New York City: Patented June 16, 1841; ante dated Dec. 16, 1840: I claim the use of a knife having a lateral or end vibratory motion, for the purpose of cutting the edges of books, papers, etc., and in combination with the frame and rods, or either of them, and operated by cams or other equivalent devices, to give a drawing and vibratory cutting action to the knife, substantially as set forth.

I claim also the mechanical construction of the press, as arranged and combined with the parts for cutting and pressing, thereby forming an entire machine for the purpose described.

BATTING OF COTTON AND OTHER FIBROUS MATERIALS—By H. B. & H. T. Lawton, of Troy, N. Y. Patented originally May 13, 1849: We do not claim the mode of operating a series of carding machines to make batting, as shown by J. Essex's drawings, nor any part of the above described machine.

We claim the method of making batting or wadding, by laying on and covering both the upper and lower surfaces of a sheet or sheets of cotton, wool, hair, or other elastic fibrous material, that has been merely well picked, cleaned, and spread with layers of carded condensed, and compact fibres, such as cotton, wool, hemp, etc., for the purpose of rendering the same smooth, strong, and more suitable for bedding, wadding, and upholstering purposes.

DESIGNS.

PARLOR STOVE—By Samuel D. Vose, of Albany, N. Y.

COAL STOVE—By Samuel D. Vose, of Albany, N. Y.

BOX STOVE—By Samuel D. Vose, of Albany, N. Y,

PARLOR COOK STOVE—By Samuel D. Vose of Albany, N. Y.

DINING ROOM STOVE—By Wm. L. Sanderson, of Troy, N. Y., (assignor to Reuben R. Finch, Senr., and Reuben R. Finch, Jr., of Peekskill, N. Y.)

COOKING STOVE—By S. W. Gibbs, of Albany, N. Y., (assignor to North, Harrison, & Chase, of Philadelphia, Pa.)

Tea, its Adulteration, Chemical Constitution, Etc.

The Chinese sometimes give a flavor to tea by mixing sweet-smelling flowers or roots with it. Warrington has shown beyond a doubt that the light-green color of so-called green tea is owing to an adulteration. He found by the aid of the microscope, and by chemical reagents, that all the kinds of green tea imported into England were covered with a green powder, which, on the one hand, was composed of an orange-yellow colored vegetable substance, and on the other, of Prussian-blue—a poisonous pigment, the deep-blue color of which is made lighter by gypsum, or kaolin. The Chinese add the yellow and blue color to imitate the light-green of the best kinds of tea, and that this is only practiced with the tea intended for exportation, and not with that for home consumption. By shaking the tea in a dry state, or better, by shaking it with cold water, and allowing the water to run off through muslin, the coloring matter may be effectually separated. The washed leaves have a very different appearance when dry, they are as dark as black tea, with a smooth, and not so wrinkled a surface. The unglazed tea of the English tea-dealers has precisely the same appearance. This tea is either dark-brown or yellowish-brown, without any tinge of green or blue; its surface is only covered with some gypsum.

The different varieties of tea all lose nearly 4 per cent. according to P. Mulder, by a complete process of drying at 212° F. Peligot, on the other hand, found on examining twenty-seven varieties, that the black teas lost 8 per cent., and the green teas 10 per cent., by drying at 230° F.

Besides the substance of the cells and vessels of the leaves, which in black tea amount to from 27 to 28 per cent., and in green tea to only 17 to 18 per cent., all varieties of tea contain, without exception, from 4·77 to 5·56 per cent. of ash, which is composed of sulphuric acid, phosphoric acid, hydrochloric acid, lime, vegetable substances, which can be dissolved and extracted by different liquids; these are partly of the kind common to all vegetables, as gum, wax, resin, clorophyl, &c., and partly characteristic and peculiar to tea; viz.: a volatile oil, tanic acid, and theine.

The tannic acid is very similar to that which occurs in the bark of the oak, and in gall-nuts, and has the property, in common with it, of precipitating the salts of iron of a black color. According to the above analyses, the quantity of this acid in green tea, is very much greater than in black tea, being nearly 18 per cent. in the former, while it is only from 13 to 15 per cent. in the latter.

The volatile oil of tea is of a citron-yellow color, becoming easily solid, it floats on water, and is quickly resinified when exposed to the air. It has such a powerful taste of tea, that when placed on the tongue it spreads over the entire throat, and exerts a powerful action on the nerves, producing trembling, and similar affections. When tea is distilled with water, the oil separates, and is volatilized; by boiling, or infusion, it is extracted by the water which becomes impregnated with it. It is obvious that a large portion of this oil must be lost in drying the tea, if it already exist in the leaf, and is not a product of the drying process, which appears probable. It is contained in green tea to the extent of 1 per cent, and in black tea to ½ per cent. There is no doubt that the action of tea upon the system is in great part due to this oil, although the theine is the more efficient cause.

Theine is a compound of carbon, hydrogen nitrogen, and oxygen (C8 H10 N4 O2), which neutralizes acids, and is thus allied to the organic bases. Crystallized from water, it combines with 2 equivalents, or 8 per cent., and as a hydrate, forms beautiful white, silky needles. These lose their water of crystallization at 212° F., melt at 353° F., and are volatilized unchanged at 725° F.; the theine cannot consequently be volatilized at the temperature at which tea is dried. Theine is easily soluble in hot water, much less in cold, and amongst ordinary reagents, tannic acid is the only substance that precipitates it, forming with it an insoluble substance in cold, but soluble in hot water. Theine has no smell, but a slightly bitter taste. Theine is to tea, what quinine is to bark, that is to say, the exciting effects of tea must be attributed chiefly to this constituent, although the small quantity contained in tea made this at first appear doubtful. Mulder first stated the amount in tea to be ½ per cent. Stenhouse afterwards obtained 1 per cent.; and, lastly, Peligot proved that there could not be less than 9 per cent. in dry tea. The large amount of nitrogen in tea-leaves corroborates the latter statement, as these contain twice as much as is found in rye or wheaten flour, and more than one-half of the nitrogen is contained in the aqueous decoction, which must be solely attributed to the theine.

There is another nitrogenous constituent contained in tea besides theine, which is only dissolved by water when a little potash is added to it; this substance, according to Peligot, is precipitated by acids, and resembles in general characters the casein; it is retained in an insoluble state in the leaves, in combination with tannic acid.

It is obvious, from the foregoing observations, that only a portion of the substances contained in tea leaves is soluble in water, and can be communicated to the decoction as it is consumed in China and America. The portion extracted from black tea varied in six specimens, according Mulder, from 29 to 38 per cent.; in the same number of kinds of green tea, from 34 to 46 per cent. Peligot found in black tea 38 per cent., in green tea 43 per cent., as the mean quantity contained in the commercial undried article, and estimated the amount of nitrogen in this soluble portion, which must be solely due to theine, at 4½ per cent. in each kind. Thus, from 100 parts of tea, supposing it to be entirely exhausted, 6 per cent. of theine would be contained in the decoction; in domestic economy, however, by the ordinary method of extraction, the entire quantity is never dissolved, about one-third being left in the leaves; for instance, 100 grains of gunpowder tea infused in 10 lbs. of water, yielded 31 grs. of extract, containing 5 per cent. of theine. The ordinary extract of tea contains the volatile oil, the theine combined with tannic acid, besides gum and some other extractive matters. The whole of the oil of tea would be lost by boiling; with lukewarm or cold water, little or no theine would be extracted. The combination of theine with tanic acid can only be properly extracted by pouring boiling water upon tea in close vessels, and the aromatic oil remains at the same time in solution in the water without being volatilized. A good decoction of tea, as, is well known, becomes turbid on cooling, and is covered with a skin, caused by the separation of the tannate of theine.

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TO CORRESPONDENTS.

G. B., of Ark.—We have sent you the numbers of Vol. 7 which you ordered, and marked your subscription up one dollar's worth.

H. V., of Albany—We have got your engravings all executed, but the state of our columns would not admit of an insertion in this number.

J. C. H., of N. Y.—The gloss is all put on shirts by hand ironing, women long practiced in the art do it. Some spermaceti is mixed with the starch. We do not like such a gloss on shirts.

H. T. R., of N. C.- We have very carefully examined the model of your invention, and think it possesses novelty of a patentable character. We cannot apprehend any objection to its operation. We will await your further action in the premises before taking steps to prepare the papers. The safety valve is old and well known. It is the common kind in use.

G. H. B., of B. Island.—Your idea in respect to writing on curvilinear lines is new to us, but we do not like the plan so well as the old way. We do not believe that it could be introduced generally.

T. C., of N. Y.—We have investigated the subject of your complaint against the People's Washing and Bathing Association, and we believe it is as well conducted as it could be where there are so many to patronize it, and such a diversity of characters as the superintendent has to deal with. The bathers and washers were not stipulated to a certain amount of water, at first, as we understand, but were allowed to draw the water themselves. And the consequence was a great deal of pure precious croton water was wasted, besides the premises were often deluged through the carelessness of the user.

B S., of N. Y.—We hope you may be able to sustain your just claims against any combination which may be brought against them. The evidence we do not care to publish.

L. W. H., of Me.—As you can make a model of your invention very cheap, we advise you to do so and send it to us for further examination. The sketch is too imperfect to afford us a clear knowledge of its character.

W. M. L., of La.—We will endeavor to furnish an engine such as you require.

J. P. N., of N. Y.—We do not perceive any novel features in either of your springs. The inverted eliptic spring has been tried substantially the same as your's. We cannot recommend them as novelties of a patentable character.

A. E., of Mass.—Your improvement in tanning is fully covered by Hibbard's patent.

W. W. W., of Wis.—The model of your harvester is received, and will be duly examined. The novelty is not superficial, but must lie hidden beneath the general surroundings.

G. T., of Me.—Your plan for recovering lost anchors, &c., has been presented to us a number of times, but it will not operate well, as the water forms part of the circuit.

G. F. McL. & Co., of Mass.—We have used a neat india rubber outer garment some years ago, for wet weather, but we did not like it. The *McIntoshes*, as they were called, which were so much in vogue 16 years ago, were made of water-proof cloth, and were very neat.

J. V. D., of Geo.—Ranlett's Architect is perhaps the best work you could obtain, as it is devoted to cottage architecture and landscape gardening. The plates are numerous, large, and beautiful. Price in 2 volumes bound, $12, in sheets, $10. It cannot be sent by mail.

P. L., of N. Y.—If, as you say, your invention is ripe, it is certainly unwise to delay an application for a patent. We can recommend no proper person to you at present, should we learn of any one wishing to become interested, your case will demand our attention.

J. T., of Ala.—J. B. Wickersham, 312 Broadway, or Phipps, Hamlin, & Co., 398, can furnish your railings. Wilson's sewing machine is a good one.—Wheeler, Wilson & Co., Watertown, Conn., are agents to whom you should address for particulars.

A. J. M., of S. C.—A small steam engine is the best power you can employ.

W. F. W., of La.—You had better send us a small model of your invention that we may be able to prepare the drawings. The publicity will not operate against its success in respect to a patent. We should suppose $50 would cover all costs attending an application. If you are not prepared to go forward, perhaps you had better file a caveat, and await until your invention is completed. The government fee is $20, and a drawing and description will be required. We can prepare these from a rough sketch and description.

J. S. P., of Pa.—Yours will be attended to next week, it came a little too late for this number.

J. E. P., of Phila.—The quadrature of the circle has not been discovered. We have seen a machine used to measure a circle in a straight line, but that is not what is wanted. Of the many plans proposed to solve what is termed the quadrature of the circle, not one is worth anything for practical purposes.

J. E., of R. I.—We do not find anything in Gilroy's work on Weaving which will prevent you from getting a patent, neither have we ever seen any arrangement like it. A patent could in all probability be obtained.

Z. B. S., of Ala.—Some years since a work was published in England, treating of the Calcareous Minerals, but we have not seen a copy for some time H. Bailliere, 392 Broadway, is an importer of scientific books, and could doubtless furnish you such information as you solicit.

Money received on account of Patent Office business or the week ending Saturday, June 26:

D. & J.. of N. Y., $30; A. G. H., of N. H., $22; B. C. C., of Ill., $25; J. D., of Pa., $15; D. C. T., of N. Y., $30; J. P. P., of L. I., $50; R. H. T., of S. C.; $45; J. & K., of Mass, $40; O. L. R., of Mass., $5; W. H. R., of Ct., $40.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 26:

W. H. R., of Ct.; B. C. C., of Ill.; W. H W., of Mass.: R. H. T., of S, C.; D. C. T., of N. Y.; B. D, S., of Pa.; J. D. of Pa.: J. P. P., of N. Y.; G. & S. of N. C.; F. O., of N. Y.; S. A. C., of Ct.

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IMPORTANT TO INVENTORS.---The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

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THE SATURDAY EVENING POST—"The Curse of Clifton: a Tale of Expiation and Redemption," by Mrs. E. D. E. N. Southworth, author of "The Deserted Wife," "Shanondale," "The Discarded Daughter," etc.—Such is the title of a new novellette about being commenced in the Saturday Evening Post, of Philadelphia, by that gifted writer, Mrs. Southworth. Single subscriptions $2 a year, 4 copies $5, 9 copies $10, 21 copies $20. Specimen copies sent gratis. Address, post paid, DEACON & PETERSON, No. 66 South Third street, Phila. 1t

FOR SALE—One Power Mortising Machine; one Toggle Joint Envelope Press, and one Press for cutting, stamping, and piercing, with feed motion attached, all new and in good order, by CARPENTER & PLASS, corner of Hester and Elizabeth sts., N. Y. 42 2*

THEODOLITES, RAILROAD TRANSITS, AND LEVELS—Drawing Instruments, Microscopes, Telescopes, Electro-Magnetic Machines, Galvanic Batteries, Daguerreotype apparatus, Barometers, Thermometers, &c. Manufactured and for sale wholesale and retail by JOHN ROACH, Optician, 79 Nassau st., N. Y. 42 5*

STEAM ENGINE FOR SALE—A five horse-power Oscillating Steam Engine, with a very superior locomotive boiler, all in perfect order, will be sold at a bargain. Inquire of J. H. BURNETT, 308 Broadway. 1*

WANTED TO PURCHASE—One Wool Card (single cylinder will do) for making rolls for hand spinning. Any person having one to dispose of may state the width, number of workers and strippers, condition of clothing, price, etc.; a second-hand one would do if not much worn. Address, post-paid, JOB RUSSELL,
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THREE STEAM BOILERS FOR SALE—One of Ericsson's improved tubular 20 horse-power for $650; one upright tubular six horse-power for $275; one second-hand tubular boiler, four horse-power for $150. LAPHAM & WELCHMAN,
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AARON KILBORN, 4 Howard street, New Haven, Ct., manufactures Steam Engines, Shafting, Presses, Fan Blowers, Lathes, Planers, Artesian Wells, Chain and Force Pumps, Pipe, Heating Apparatus for Houses, etc. 42 10*

TO BOOT AND SHOE MANUFACTURERS—The undersigned has invented a new and, he believes, a very useful improvement in revolving heels for boots and shoes, which he is desirous of selling out, entire, to manufacturers or others interested. Parties wishing to learn the particulars can address MORLEY & SONS, No. 20 Union st., Brooklyn, L. I. 1*

TO INVENTORS—The subscribers will enter into arrangements, on the most reasonable terms, for furnishing Drawings, Patterns, and Models, believing that they have one of the most thorough and scientific men, in that line of business, to be found in New York. Their object is merely to fill up time, they not having sufficient work of their own to keep him in steady employment, and do not like to have him leave for fear they could not obtain his services when required. Apply at Dunlop's Manufacturing Emporium, No. 36 Gold street.
41 13* FRASER & EVERITT.

IMPORTANT TO IRON FOUNDRIES—The Galvanic Alloy Manufacturing Co., Nos. 401, 403, and 405 Cherry st., N. Y., will furnish the Aerostatic Fan Blower at $55, and with patent fitting at $65, that produce sufficient blast for the largest cupola, melting 3 and 4 tons of iron per hour; taking less than one half the power of those now in use, that cost from $80 to $100. The wings, being only about an inch in width (planned upon entirely new and mathematical principles), produce double the blast with half the power of other blowers. Warranted in all cases, or they may be returned and the money refunded. 38 eowtf.

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A CIVIL ENGINEER of good reputation in machinery, hydraulics, and mill work, can find a desirable location by addressing GEO. T. McLAUTHLIN & CO., 108 State street Boston. 41 2*

DRAUGHT BOARDS, PATENT—23 by 29 inches. Ready sales their best recommendation. Cheapest instruments in use. Complete for $10. Sent by Express. Direct (post-paid) to H. W. CHAMBERLIN, Pittsfield, Mass. 40 tf

MARYLAND INSTITUTE FAIR—The Board of Managers of this Institute will hold the Fifth Annual Exhibition in the Grand Saloon of the Institute Building, in the city of Baltimore, commencing on the 4th day of October next. The great facility thus afforded for a splendid display of American Manufactures, they hope, will be a sufficient inducement for the Manufacturers, Mechanics, Artists, Inventors, and others throughout the United States, to contribute such specimens of their industry, skill, and ingenuity, as shall be alike honorable and creditable to the mechanical genius and refined taste of the country. The Hall will be open for the reception of goods on Monday the 27th Sept. next, from which time to Thursday night, Sept. 30, articles intended for competition and premium must be deposited. The balance of the week will be devoted to the reception of articles intended for exhibition only, free of charge. After which time depositors will be subject to a charge of 50 cents to $1. On Monday, Oct. 4, at 7 o'clock, P. M., the Exhibition will be open for the reception of visitors. Circulars containing the regulations and arrangements established by the Standing Committee on Exhibitions, can be had by addressing (post-paid) JOHN S. SELBY, Actuary of the Maryland Institute, by whom any information required will be promptly given. 39 7

PATENT ALARM WHISTLE.—Indicators for speaking pipes, for the use of hotels, steamships, factories, store-houses, private dwellings, etc. etc. This instrument is intended to supersede the use of the bell, being more simple in its arrangement, more effective in its operation, and much less liable to get out of order, being directly connected with the speaking pipe, it requires no lengthy wires in its use, which are continually getting out of order or breaking. There have been several hundreds of them fitted up in this city and vicinity with the greatest success. They can be attached to pipes, which are already fitted up without domage to buildings, and for much less than the cost of a bell, and warranted to operate. The public are invited to call and examine them at the factory of the patentees.

WOOLCCCKS & OSTRANDER.
57 Ann street, New York.
State and County Rights for sale. 40 13

IRON FOUNDERS MATERIALS—viz.: good American Pig Iron—grey, mottled and white; No. 1 Scotch Pig Iron, of favorite brands. Pulverized Sea Coal, Anthracite Charcoal, Soapstone, and Black Lead Facings. English and Scotch patent Fire Bricks—plain, arch, and circular, for cupolas. Fire Sand and Fire Clay. Iron and brass moulding sand; Core sand and flour; always on hand and for sale by G. O ROBERTSON, 135 Water street (corner of Pine), N. Y. 40 6*

TO CARPENTERS AND DEALERS IN PATENT RIGHTS—The whole right and title to the Patent Blind and Shutter Fastener, which was illustrated in No. 37 Vol. 7 of the Scientific American, will be sold cheap to a cash customer, or the owner of the patent will sell single States (not in smaller quantities) if desired. The invention is a good one; the claims are broad, and it is not an infringement of any existing patent, as decided by parties who have investigated the matter thoroughly. For particulars concerning the purchase of rights, etc., address "DESAIX," box 773, P. O., New York City. 41 3*

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post.paid) MUNN & CO.
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BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 23tf

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 26 tf

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Bridgeport, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

PORTER'S PATENT GRADUATING VALVE FORGE TUYERE—Illustrated in this paper Sept. 6, 1851, gives a sure, quick, and clean heat, and is warranted to save full 25 cts. per day to each fire. Two sizes manufactured. Price $6 to $8. For sale, wholesale and retail, at No. 9 Gold st. W. J. & J. H. BURNETT. 42 2*

PAINTS, &c. &c.—American Atomic Drier' Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.
QUARTERMAN & SON, 114 John st.,
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CHARLES F. MANN, FULTON IRON WORKS, Below the Troy and Greenbush Railroad Depot, Troy, N. Y.—The subscriber builds Steam Engines and Boilers of various patterns and sizes, from three horse power upward; also, his Portable Steam Engine and Boiler combined, occupying little space, economical in fuel, safe, and easily managed; Double Action Lift and Force Pumps; Fixtures and Apparatus for Steam or Water; Tools for Machine Shops; Shafting and Pulleys for Factories. Brass Castings and Machinery made to order at short notice. Steam engines furnished cheaper than can be had elsewhere, of the same quality. 30tf

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27tf P. A. LEONARD.

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 lbs., price $600. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 39 26*

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

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NEW HAVEN MANUFACTURING COMPANY, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILLS, Agent N. H Man'g Co. 25tf

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SCIENTIFIC MUSEUM.

Manufacture of Trifles.

A correspondent of an eastern paper thus writes of the manufactories at Waterbury, Conn. :—

"Has your father or grandfather got a pair of old gilded epaulets not marked 'Waterbury?' Open your jacknife, and see if 'Waterbury' is not cut into the blade. Turn over a large ancient, or small modern gilded, or even yellow button, and 'Waterbury' can be spelled around its margin. Look at your wife's—I mean—no matter—hooks and eyes, and see them grin 'Waterbury,' as they pull hard at each other. There's the end of your cane, the bitts in your horse's mouth, the tool you curry him with, the metal trimmings of your umbrella, the lock of your trunk, and all the unthinkable little bits of metallic civilization, comfort and ornament, that ever were used or seen, hailing from 'Waterbury.' Only think of a five story brick building, covering more ground than Greenfield Common, all full of heavy and light machinery, costing anywhere from twenty to fifty thousand dollars, with fifty men and boys making suspender buckles! Go to another, where steam puffs off from a thirty horse engine, and you hear a roaring and crashing, as if fifty thousand trip-hammers were pounding the Rocky Mountains, and you find men very busy in getting out those sixpenny pieces of iron that tip the ends of the handles of cheap knives and forks. There is another concern hissing and snapping, with its $5,000 worth of machines that pull in long coils of wire, and turn out the eyes used in the wood and horn buttons—nothing else—and so you may go from one great shop to another, till you break down in utter amazement at the millions so profitably invested in manufacturing just nothing at all."

Culture of Blackberries.

In New England they are making a great deal of the blackberry, which bids fair to take a high rank among the smaller fruits. Hovey's Magazine, in treating of this subject, says:—

"Since the introduction of the improved variety, about six or seven years ago; of which we have heretofore given several accounts, and whose cultivation has been so well detailed in our last volume by Captain Lovett, who has been one of the most successful growers of the fruit; it has been very generally disseminated; and, the past year, many remarkably fine specimens were exhibited before the Horticultural Society.

The liberal premiums offered for this fruit, by the Society, have had the good effect of producing very general competition; and so superior have been some of the specimens; so much larger than when first exhibited, evidently showing what care and attention will do for this as well as other fruits; that the Society have deemed it advisable to offer a high prize for a seedling, with a hope of a still further improvement; for, although what few attempts have been made in this way have not been attended with very favorable results, there is still good reason to believe that it will yield to the ameliorating influences of cultivation, as well as the strawberry, the gooseberry, or the raspberry.

So productive is this variety that, according to the authority we have quoted, a dozen of plants, when well established, yield sufficient fruit for a family of the ordinary number. Among the berries exhibited in public by Capt. Lovett and others, were some over an inch and a half long."

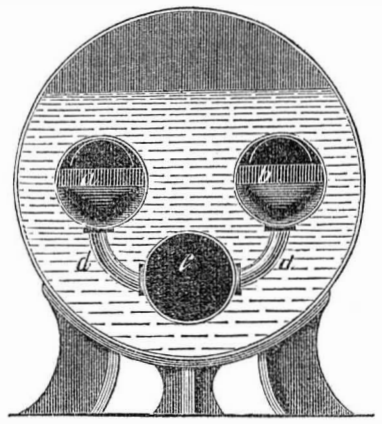
New Musical Instrument.

Mr. Freberhuyzer, a musician of Albany, has invented a new musical instrument, the materials used for its construction being sea shells. The exterior of the shell is not disturbed, and it retains all its rough attractions. The mouth-piece is fitted to a screw tube adjusted at the head of the shell. Along the sides the key holes are arranged at proper intervals, and the edges carefully lined. A valve lined with velvet, hinged at one corner, covers the mouth of the shell, and is compressed or opened as the character of the music requires. At the opposite and extreme corner of the mouth, the vent is left for the egress of the surplus air. The instrument, therefore, with the valves and keys closed, is air-tight, and the variations in the size and natural organization of the shell, furnishes the change in the tone of the instrument. The music is said to be powerful and agreeable.—[Exch.

[Anthony Williams, of Cornville, has invented a new musical instrument, the materials used for its construction being corn stalks. The outside maintains all its original roughness; it is perforated with a number of holes, and it has valves lined with soft leather; his neighbors have given it the name of "corn-stalk flute." He discourseth sweet music with it. "Old Hundred," &c.

On Boilers.---No. 28.

FIG. 55.



TATHAM'S BOILER.—This engraving is a transverse section of an improvement in boilers invented by J. & D. Tatham, of Rochdale, Eng., and for which they secured a patent in July last, (1851.) The boiler is constructed with three flues traversing its length. Furnaces are placed in two of these flues, *a b*, beyond which point they are contracted, and are entirely stopped up at the extreme end. A series of transverse passages, *d d*, form communications from the flues, *a b*, to the third flue, *c*, by which the products of combustion pass into that flue. A considerable addition of heating surface is obtained, while the heat, at the same time, is more diffused in its application.

Another improvement exhibited in this figure, is in the arrangement of the furnace-bars, which, on examination, it will be seen, are placed transversely to the length of the furnace, instead of longitudinally, as usual, The advantage of this arrangement is in the substitution of new bars for the back bars when worn out; they being more subject to the injurious effects of the fire than those in front. The necessity of renewing the whole of the bars when the back parts are worn out, is thus obviated.

FUEL.—A correspondent in Wisconsin asks of us, "what is the quantity of fuel consumed in the production of steam, such as a piston working with a force of 50 lbs. to the square inch, what will be the consumption of fuel to guarantee steam to work the piston with a force of 100 lbs. to the square inch?"

Here no reference is made to expansion or anything else, of course the consumption of fuel will just be double for the 100 lbs. to that of 50 lbs., for the very reason that the fuel has just double the resistance to overcome when we take the fuel as the unit of power. The value of fuel in boilers depends upon the quantity of water which the fuel, according to its weight, will evaporate in a given time. Every cubic inch of water transmitted in the form of steam to the cylinders produces a force represented by a ton raised one foot high; 33,000 lbs. is nearly 15 tons, therefore if 15 cubic inches of water are converted into steam per minute, or 900 cubic inches per hour will produce a mechanical force equal to one horse. The question to ask about the consumption of fuel is, what quantity of fuel will evaporate a certain amount of water in a given time. An engine working at 100 lbs. pressure is of double power to one working at 50 lbs. on the square inch. If, then, it takes takes 7 lbs. or whatever the quantity of fuel may be, for one horse power per hour, it certainly will take the double quantity for two horse power.

The following is a receipt for making cement for the seams of boilers:—

Take 16 parts of iron filings, free from rust; 3 parts powdered sal-ammoniac (muriate of ammonia); and two parts of flower of sulphur; mix all together intimately, and preserve the compound in a stoppered vessel, kept in a dry place, until it is wanted for use. Then take 1 part of the mixture, add it to 12 parts of clean iron filings, and mix this new compound with so much water as will bring it to the consistence of paste, having previously added to the water a few drops of sulphuric acid. Instead of filings, turnings, or borings of cast-iron may be used; but it must be remarked, that a cement made entirely of cast-iron is not so tenacious and firm as if of wrought-iron; it sooner crumbles and breaks away. It is better to add a certain quantity, at least one-third of the latter to the former.

Palm Oil.

This oil is obtained, in Guinea and Guyana, by expressing, as also by boiling, the fruit of the *evoira elais*. It has an orange color, a smell of violets, a bland taste, is lighter than water, melts at 84° Fah., becomes rancid and pale by exposure to air, dissolves in boiling alcohol, and consists of 69 parts of oleine, and 31 of stearine, in 100. It is employed chiefly for making yellow soap. It may be bleached by the action of either chlorine or oxygen gas, as also by that of light and heat.

The palm-tree, growing on the coast of Africa, furnishes, at the base or origin of its leaves, clusters of a yellow succulent fruit. Each of these bears some resemblance to a grape-shot. The bunches are of different sizes, and the fruit composing them of different shapes, as may be expected from their reciprocal pressure, although naturally round, when not exposed to it. The pulp of this fruit is soft, and of a bright yellow color—it is from this that the oil is obtained. Within it lies inclosed a hard and thick-shelled stone, of a dark color, within which is contained a firm white kernel, of a pleasant oily flavor. This kernel also affords an oil, which is not yellow, but white—and not fluid, but concrete even in Africa.

The yellow palm-oil is quite fluid while in Africa, and that it is not until it has been exposed to the cold of our temperate regions that it becomes solid—whereas the oil of the kernel is always concrete, or nearly so. Both of the white and the yellow oil are obtained by expression. The latter is procured in immense quantities in Africa, where it is partly consumed by the negroes along with their rice and pepper, or fried with their fish; and partly exported to Europe, where its principle use is in the manufacture of soap and candles.

Palm oil is excellent for chapped hands and for softening the skin. It is but little used in our country yet, lard and tallow being much cheaper here. The time will come when it will be more extensively used among us, both for soap and candle. It makes a most excellent salve when combined with rosin, by heat in a clean vessel. The introduction of palm oil into Europe and its application to the useful arts has been the means of conferring incalculable benefits upon all classes.

Singular Explosion.

On Sunday of last week, at 10½ P. M., an immense globe (reservoir of wind) at the Iron Works at Hudson, exploded. The report was heard some distance off, and, for a time, created much excitement. The upper part of it was blown off, and it is thought that the globe is entirely ruined. It originally cost $11,000, and from its position, being near the line of the Hudson River Railroad, it was looked upon as a curiosity. No person was injured, but the damage done is estimated from $15,000 to $20,000. Negligence on the part of some of the workmen is assigned as the cause of the explosion.

Black Rain.

On Friday morning, says the "Kilkenny Moderator," (Ireland,) between six and seven o'clock, a heavy shower, which lasted for upwards of twenty minutes, fell over the city and a considerable district adjoining. The rain proved, upon examination, to have been of almost an inky blackness, and had all the appearance of being impregnated with soot or charcoal. In the last year of the cholera we were visited by a similar shower, and in the popular superstitions the appearance of that dreadful disease was largely attributed to the circumstance.

Pyroligneous Acid.

This acid is made by the distillation of wood in close vessels. The retorts are of cast-iron, 6 feet long, and 3 feet 8 inches in diameter. Two of these cylinders are heated by one fire, the flame of which plays round their sides and upper surface; but the bottom is shielded by fire-tiles from the direct action of the fire. Two cwts. of coal are sufficient to complete the distillation of one charge of wood; 36 imperial gallons of crude vinegar, of specific gravity 1·025, being obtained from each retort. The process occupies 24 hours. The retort-mouth is then removed, and the ignited charcoal is raked out for extinction into an iron chest, having a groove round its edges, into which a lid is fitted.

Steam on the Erie Canal.

The steamboat Jacob Hinds, says the Lockport Democrat, passed through this village last Thursday, having in tow four of the largest class of boats that can now navigate the canal, they were heavily loaded with railroad iron, and as eighty-four tons was the smallest that any of them had, the aggregate amount must have been at least three hundred and twenty-six tons. With this heavy line of boats to drag, the steam tug moved ahead at the rate of between three and four miles an hour, notwithstanding the obstacles which the narrow and shallow water of the old canal in many places presented. It made no swell to wash the banks, but moved on smoothly, hardly breaking the stream with a riple.

Sickness on the Mississippi River.

We learn from the St. Louis papers, that there is unusual sickness and mortality among the immigrant passengers on the steamboats running from New Orleans to that city.—Complaints are made that the boats are too crowded. For instance, 321 German immigrants, who came to St. Louis on the steamer Pawnee, have signed an affidavit that there were four hundred and seventy-six passengers on board, all of whom were landed at quarantine, eight of them laboring under severe attacks of illness.

These foreigners come to a strange country, and the change of food, water, and climate, after a long voyage, is certainly enough to cause cholera at any season of the year.

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